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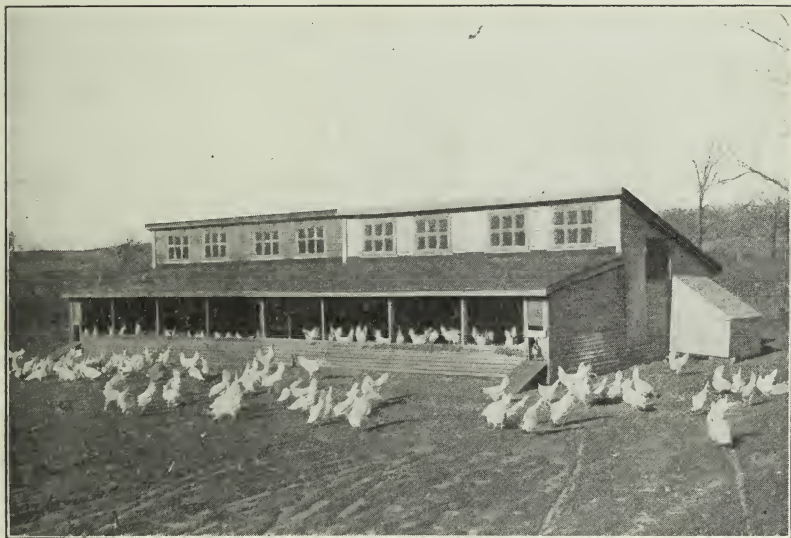


Fig. 1. House for the farm flock

RECORDS FROM A PURDUE FARM FLOCK

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RECORDS FROM A PURDUE FARM FLOCK

A. G. PHILIPS

SUMMARY

1. Leghorn pullets were as profitable in 1917 as during the three previous years.
2. The egg production per pullet per year was from 117.6 to 135.6.
3. The income per pullet per year was from \$2.47 to \$4.098.
4. The net per cent. profit on investment was from 29.5 to 74.2.
5. Leghorn pullets each made from \$0.64 to \$1.62 profit per year.
6. Poultry keeping was profitable in flocks ranging from 100 to 260 White Leghorn pullets.

INTRODUCTION

The Purdue University Agricultural Experiment Station has been carrying on experimental work with poultry for seven years, particularly along the line of feeding. The question has often been asked as to whether or not the information and experience derived from the feeding investigations could be utilized under the conditions ordinarily prevailing on the farms of Indiana.

The Poultry Department therefore planned an experiment to be carried on for several years, in which a flock of from 100 to 260 pullets was maintained under ordinary farm conditions, applying strictly to the care, housing and feeding of this flock the information which was being recommended to the farmers of the State.

OBJECT

The object of the experiment was to determine the egg production, income, costs and profits that might be obtained from such a flock kept under the conditions mentioned.

Experiments Nos. 1, 2, 3 and 4 were conducted during four different years as follows:

Experiment No. 1—December 1, 1913 to November 30, 1914

Experiment No. 2—December 1, 1914 to October 31, 1915

Experiment No. 3—November 1, 1915 to September 30, 1916

Experiment No. 4—October 1, 1916 to September 30, 1917

Experiments Nos. 1 and 2 were not started until December 1, because mature pullets could not be obtained before that date. As it is more practical and desirable to start pullets October 1, Experiment No. 2 was shortened to 11 months to permit the next one to begin November 1, and Experiment No. 3 was closed in 11 months to allow Experiment No. 4 to run from October 1 to September 30. Thus, Experiments Nos. 1 and 4 are of 12 months duration, and Experiments Nos. 2 and 3 are of 11 months duration, respectively.

HOUSING

The birds were housed during Experiments Nos. 1 and 2 in a 20 x 20 feet half-monitor house built on a foundation of cedar posts, with one foot of gravel for a floor. For Experiments Nos. 3 and 4, the house was enlarged to 20 x 40 feet, the partition between the old and new parts being retained to prevent drafts. The construction was modern in every respect and the interior was equipped with feed hoppers, dropping boards, nests, etc. The cost of building the small house was \$120.00 and for the large size was \$220.00.

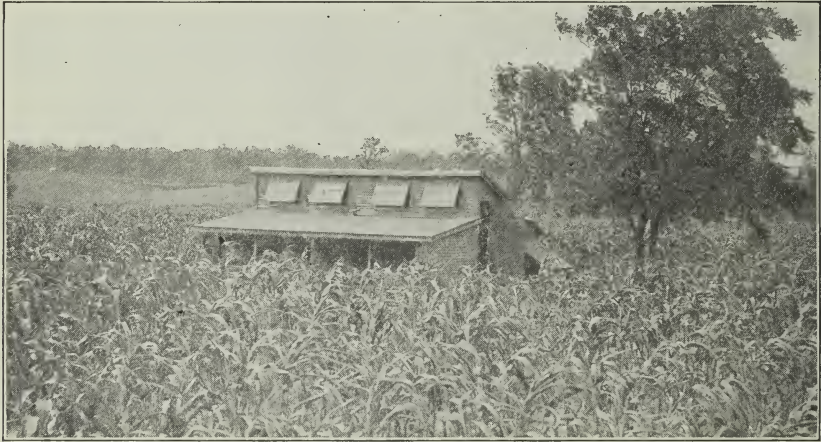


Fig. 2. Poultry house in a corn field. House used in Experiments Nos. 1 and 2, showing how corn can be grown in the poultry yard successfully besides furnishing shade for the poultry

YARDING

During the first two years the fowls had free range over eight acres of corn, being confined to the house for a few weeks after each planting time. For Experiments Nos. 3 and 4, two lots, each an acre in size, were fenced off and the birds permitted to run in one or the other of them at all times. In the fall, a rye cover crop was planted and a growing crop of grain was harvested in one lot each year. During the summer, oats and beans were grown for pasture in one lot. All seed planted was charged as feed for the chickens in the records, but no rent was charged for the use of the land. The land was of gravelly loam, well drained, and but for lack of shade would have been considered ideal. The quality of the grain crops was greatly improved in the lots where the chickens were allowed to roam.

STOCK

Each year the stock consisted of Single Comb White Leghorn pullets reared on the Purdue Poultry Farm and except in Experiments Nos. 1 and 2 they were matured early; they were picked from the flock that remained after the pullets for other experiments had been chosen. In Experiment No. 3, the pullets were laying when put into the experi-

ment; in the other experiments, they were just ready to lay. The numbers of birds at the beginning and end of each experiment were as follows:

Experiment No. 1—at beginning 100—at end 84

Experiment No. 2—at beginning 130—at end 115

Experiment No. 3—at beginning 260—at end 204

Experiment No. 4—at beginning 230—at end 206

Males, consisting of cock birds, were kept with the flock during the breeding season, and their feed and care only were charged to the pullets, no credit being given for any added income that was obtained from the sale of hatching eggs.

RATIONS AND FEEDS

The regular standard Purdue laying ration was used as a basis of a year's feeding, which is as follows:

| Grain | Mash |
|-----------------|-----------------------|
| 10 pounds corn | 5 pounds bran |
| 10 pounds wheat | 5 pounds shorts |
| 5 pounds oats | 3½ pounds meat scraps |

Grit, shell, ground bone and green feed were available at all times and milk was used to supplement any shortage in meat scraps. About 50

pounds of skim-milk or buttermilk were considered equivalent to three and one-half pounds of meat scraps. During Experiment No. 4, very little wheat was fed and some ground oats was substituted for bran. During the molting season, one pound of oil meal was added to the ration.

PRICES OF FEEDS.—

Feeds were charged at the prices paid for them. The wheat and oats were purchased in large quantities during the summer, which helped reduce the cost. The other feeds were bought in smaller quantities and the prices varied from month to month. Wheat and corn were the only grains that at any time doubled in price in 1917 as compared with preceding years.

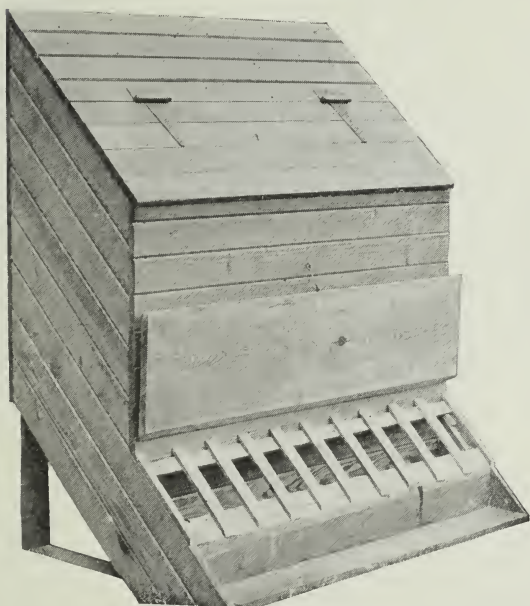


Fig. 3. A dry mash feed hopper, which will hold a large quantity of feed; may be left open or closed and hung on a wall

TABLE I.—Prices of Feeds—(Minimum and Maximum)

| Feed | Experiment No. 1 1913-1914 | Experiment No. 2 1914-1915 | Experiment No. 3 1915-1916 | Experiment No. 4 1916-1917 |
|--------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Corn ----- | \$1.17 to \$1.25 | \$1.44 | \$1.25 to \$1.57 | \$1.71 to \$3.75 |
| Wheat ----- | 1.25 to 1.45 | 1.25 to \$2.16 | 1.60 to 2.10 | 2.10 to 3.35 |
| Oats ----- | 1.03 to 1.25 | 0.94 to 1.66 | 0.94 to 1.37 | 1.37 to 1.50 |
| Bran ----- | 1.30 to 1.50 | 1.50 | 1.25 to 1.50 | 1.50 to 2.35 |
| Shorts ----- | 1.40 to 1.70 | 1.60 to 1.70 | 1.35 to 1.60 | 1.70 to 2.85 |
| Oil meal ----- | 1.80 | 1.80 | 1.95 | 2.85 |
| Ground oats ----- | | | 1.55 to 1.70 | 1.85 |
| Meat scraps ----- | 2.50 to 2.60 | 2.60 | 2.60 | 2.60 to 3.75 |
| Grit ----- | 0.53 to 1.00 | 0.53 | 0.53 to 0.59 | 0.59 to 0.66 |
| Bone ----- | | 2.25 to 3.50 | 2.25 | 2.25 to 2.35 |
| Oyster shell ----- | 0.53 to 1.00 | 0.53 | 0.54 to 0.59 | 0.59 to 0.66 |
| Milk ----- | 0.25 | 0.24 to 0.25 | 0.25 to 0.30 | 0.30 to 0.50 |

METHOD OF FEEDING AND CARE

The grains were mixed and placed in a large bin in the house, in quantities sufficient to last about a month. The mash was mixed and placed in a large feed hopper. It was planned to arrange the feeding so that the hens ate one-half as much mash as grain, but with the large range available and the outside feed plentiful, this was not possible except in the winter. This proportion was pretty well controlled in Experiment No. 4. The grit, shell and bone were fed in open hoppers; the mangel beets put on nails and the milk or water fed in buckets. The grain was scattered in a deep straw litter in the morning and afternoon,

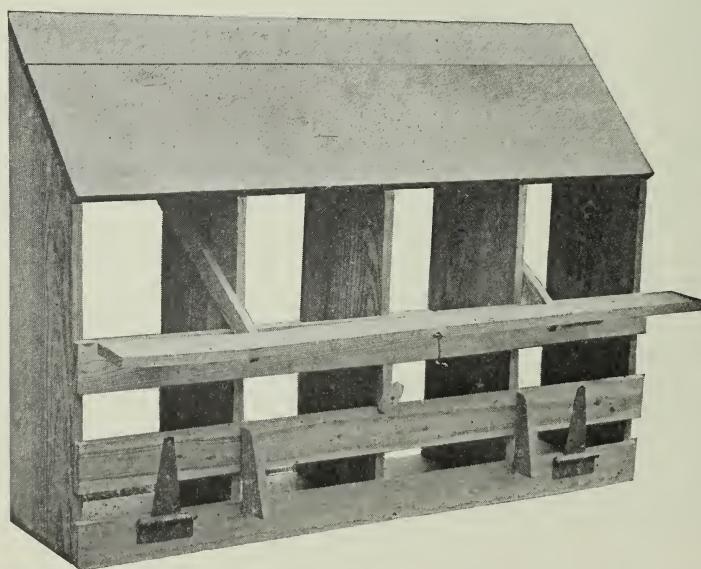


Fig. 4. Wall nests. The wall of the house serves as the back. It may be closed to prevent roosting in the nests; is cheap of construction and easily cleaned

about one-third as much in the morning as in the latter part of the day. This method kept the birds scratching and exercising, and increased the appetite for mash throughout the day. The dry mash hopper was always open and everything but the grain was accessible at all times.

The gravel floor was a nuisance and every spring and fall when a thorough cleaning was given the house, a large part of it had to be removed with the dirty litter. Rats found the house easy to enter and they burrowed under the sills at frequent intervals. A dog was found to be the best means of eliminating the rats.

The house would be considered a cold house, as it was situated a little too low on a north slope and the glass windows had to be covered with burlap during the nights in winter to prevent rapid conduction of the warmer inside air. Shade was very inadequate and except when corn was grown, the birds stayed in the house during the middle of the hot summer days. They had an opportunity to go out at all times during the winter.

At no time during the four experiments was there any trained poultryman in personal charge of the flocks. All new and inexperienced men brought onto the farm were given charge of the flocks under the supervision of an expert foreman. This was done in order that any results obtained might be comparable with what might be expected under conditions less favorable than those existing at Purdue. The house was a quarter mile away from the central feed house and was visited three times daily. Sanitation and cleanliness were given every consideration.

WEIGHTS AND RECORDS

A record was made of all feed as it was put into the poultry house and any not consumed was weighed back the first of each month; the difference was the monthly consumption. Daily record was made of eggs produced and labor done. The labor was hard to estimate accurately and if there is any error, it is an under rather than an over estimation; only such work was charged as was actually done on the house or flock. When a pullet died or was removed for sickness, a record was made of it and days lost deducted from the monthly total. Some eggs were set and a record was kept of the fertility and "hatchability" of same.

TABLE II.—Feed Consumption (in pounds)

| Feed | Experiment No. 1 | Experiment No. 2 | Experiment No. 3 | Experiment No. 4 |
|---------------------|---------------------|---------------------|---------------------|---------------------|
| Corn } grain----- | 4380.0 | 6296.6 | 9683.2 | 10741.5 |
| Wheat } | | | | |
| Oats } | | | | |
| Bran } mash----- | 1129.5 | 1293.3 | 3092.2 | 5198.45 |
| Shorts } | | | | |
| Ground oats } | | | | |
| Oil meal } | | | | |
| Meat scraps } | | | | |
| Total ----- | 5509.5 | 7589.9 | 12,775.4 | 15,939.9 |
| Grit and bone ----- | 103.0 | 46.5 | 114.3 | 110.3 |
| Oyster shell ----- | 168.5 | 269.9 | 466.5 | 570.8 |
| Grand total ----- | 5781.0 | 7906.3 | 13,356.2 | 16,621.05 |
| Milk ----- | 5571.5 | 6322.0 | 14,926.7 | 9598.4 |

Table II gives the feed consumption in groups such as grain, mash, etc. It will be noted that the total amount consumed by a large flock seems very great. In Experiment No. 4, the fact that the birds ate over eight tons of feed and nearly five tons of milk appears to be an enormous amount, but per bird it is less than 100 pounds. The birds ate from two to six times as much oyster shell as grit.

TABLE III.—Percentage Egg Production—(by months)

| | Experiment No. 1 | Experiment No. 2 | Experiment No. 3 | Experiment No. 4 |
|-------------------------|---------------------|---------------------|---------------------|---------------------|
| October ----- | | | | 20.3 |
| November ----- | | | 12.9 | 26.8 |
| December ----- | 30.0 | 7.3 | 12.7 | 12.1 |
| January ----- | 40.0 | 20.4 | 21.8 | 13.6 |
| February ----- | 23.0 | 31.7 | 33.8 | 22.9 |
| March ----- | 49.0 | 60.6 | 64.7 | 57.0 |
| April ----- | 71.0 | 67.8 | 73.0 | 66.5 |
| May ----- | 72.0 | 60.0 | 66.0 | 63.0 |
| June ----- | 48.0 | 57.0 | 29.0 | 46.0 |
| July ----- | 28.0 | 50.2 | 25.0 | 43.9 |
| August ----- | 11.0 | 22.6 | 22.0 | 38.5 |
| September ----- | 32.0 | 12.1 | 22.4 | 35.5 |
| October ----- | 14.0 | 7.0 | | |
| November ----- | 1.4 | | | |
| Number eggs per hen --- | 131.0 | 124.3 | 117.6 | 135.6 |

Table III shows the per cent. egg production per month. It will be noted that the spring production is similar as well as the highest in all years, regardless of total production, but there is no correlation between the other months, one year with another. It appears as if birds must be early hatched, well grown and early matured before the laying season, if winter eggs are desired. They must be put into the laying quarters before they begin to lay. This latter point is particularly shown in Experiment No. 3. The birds were ready to lay in October, but the house was not ready for them until November. They had started laying in October and when moved, started a partial molt and almost ceased laying. High winter egg production was not striven for, as this is unnatural and not to be expected. In Experiment No. 4, during a sudden and severe cold spell in December, enough combs were frozen to reduce production seriously for two months.

In Experiment No. 1, the pullets laid well in the winter, having had a good start, but since their year ended November 30, they had a poor record for the last two months. Few birds lay in October and November at the end of their pullet year; therefore it pays to start them in October at six months of age. In this experiment, the total egg production was practically as high September 30 as it was November 30.

In Experiment No. 2, the birds made a poor start in December and had a poor production the next fall.

In Experiment No. 3, the production was lower than in the other experiments except in the spring. During the summer months, a time when Leghorns usually lay well, the egg yield was unusually low. No reason is known for this poor lay.

In Experiment No. 4, the fall lay was good, the winter lay poor, but the spring and summer production was excellent, making the yearly total very satisfactory for a large flock. The total number of eggs per pullet per year was 131, 124.3, 117.6 and 135.6 for Experiments Nos. 1, 2, 3 and 4 respectively.

TABLE IV.—Market Prices of Eggs—(in cents)

| | Experiment No. 1 | Experiment No. 2 | Experiment No. 3 | Experiment No. 4 |
|-----------------|---------------------|---------------------|---------------------|---------------------|
| October ----- | | | | 40 |
| November ----- | | | 45 | 45 |
| December ----- | 42 | 43 | 42 | 55 |
| January ----- | 32 | 41½ | 38 | 48 |
| February ----- | 28 | 36 | 32 | 42½ |
| March ----- | 19 | 19 | 23 | 28 |
| April ----- | 19½ | 20 | 20 | 32 |
| May ----- | 22 | 20 | 20 | 34 |
| June ----- | 22 | 20 | 21 | 30 |
| July ----- | 20 | 22 | 23 | 33 |
| August ----- | 25 | 24 | 26 | 37 |
| September ----- | 29 | 27 | 33½ | 50 |
| October ----- | 35 | 37½ | | |
| November ----- | 38 | | | |

Table IV demonstrates why the birds were really profitable. The eggs were sold with the market eggs of the farm. The market for the winter and late fall was in New England during the last three experiments. Throughout Experiment No. 1 and during the spring and summer months of Experiments Nos. 2, 3 and 4, they were sold in Indianapolis. The markets were wholesale and the prices are net, minus express charges and cost of cases for eggs in case lots sold to a wholesale egg buyer. These prices are higher than the average Indiana farmer secures and show the advantages of being able to ship in case lots and to select good markets. Many other farmers in Indiana are now selling to these same markets, proving that the prices obtained are not unusual or impossible.

TABLE V.—Income from Market Eggs

| | Experiment No. 1 | Experiment No. 2 | Experiment No. 3 | Experiment No. 4 |
|---|---------------------|---------------------|---------------------|---------------------|
| October ----- | | | | \$48.266 |
| November ----- | | | \$37.87 | 68.025 |
| December ----- | \$32.84 | \$11.026 | 34.93 | 37.90 |
| January ----- | 33.15 | 28.53 | 52.36 | 38.00 |
| February ----- | 14.91 | 44.43 | 63.38 | 51.10 |
| March ----- | 22.62 | 38.52 | 92.55 | 92.19 |
| April ----- | 32.50 | 42.53 | 87.93 | 117.04 |
| May ----- | 38.08 | 38.20 | 81.80 | 120.81 |
| June ----- | 24.55 | 34.39 | 33.63 | 74.20 |
| July ----- | 13.42 | 34.71 | 30.426 | 79.47 |
| August ----- | 6.62 | 16.36 | 30.28 | 77.55 |
| September ----- | 20.54 | 9.472 | 38.39 | 92.25 |
| October ----- | 11.40 | 7.86 | | |
| November ----- | 5.156 | | | |
| Total ----- | \$255.786 | \$306.028 | \$583.546 | \$896.80 |
| Income per average number hens ----- | \$2.78 | \$2.477 | \$2.509 | \$4.098 |

Table V gives the income for eggs per month. No credit is given for any eggs sold for hatching and all eggs set were credited at market prices. The sale of a few hundred hatching eggs at four to six cents each will help bring many a flock into the profitable column. The income is naturally the greatest in March, April and May, even though the prices are the lowest, for at that time the production is very high. The total income was good in every experiment, but for the purpose of comparing one year with another, it is more practical to consider the income per hen. In figuring this, the average number of hens in the flock for the year is taken, rather than the number left at the end of the year, which seemed the better method. If figured on the basis of hens left, the amount would be lower. The income per hen was \$2.78, \$2.47, \$2.50 and \$4.09 for Experiments Nos. 1, 2, 3 and 4 respectively. The very high income in Experiment No. 4 was due to the excellent egg prices during 1917.

TABLE VI.—Expenses

| | Experiment No. 1 1913-1914 | Experiment No. 2 1914-1915 | Experiment No. 3 1915-1916 | Experiment No. 4 1916-1917 |
|--------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Cost of feed ----- | \$90.61 | \$129.57 | \$227.12 | \$392.54 |
| Cost of straw ----- | 6.65 | 5.37 | 4.60 | 8.77 |
| Cost of labor ----- | 15.17 | 21.73 | 27.94 | 36.91 |
| Depreciation on birds ----- | 21.00 | 28.75 | 51.00 | 51.50 |
| Mortality ----- | 16.00 | 20.00 | 56.00 | 24.00 |
| Depreciation on house ----- | 12.00 | 12.00 | 22.00 | 22.00 |
| Interest on investment ----- | 13.20 | 14.02 | 26.40 | 27.00 |
| Total expenses ----- | \$174.63 | \$231.44 | \$415.06 | \$562.72 |
| Income market eggs ----- | \$255.78 | \$306.02 | \$583.54 | \$896.80 |
| Profit total ----- | 81.15 | 74.58 | 168.48 | 334.08 |
| Profit per average number birds----- | 0.839 | 0.558 | 0.706 | 1.488 |
| Profit per bird alive at end----- | 0.966 | 0.648 | 0.825 | 1.62 |
| Profit per cent. on investment----- | 36.8 | 29.5 | 35.0 | 74.2 |

Table VI shows the summary of the year's work for each experiment and the figures are totals for the flocks. Labor was charged at 17½ cents per hour during Experiments Nos. 1, 2 and 3 and at 20 cents per hour in Experiment No. 4. The birds were charged in at \$1.00 each and mortality was charged at the same price. The hens were sold at 75 cents each, hence the depreciation on stock was 25 per cent. or 25 cents each for those that lived. The depreciation on the house was 10 per cent. of the original cost and included upkeep. The interest on the investment of the house and original number of fowls was 6 per cent. These estimates are fair and what might be expected under practical conditions. Some people might charge in the pullets at more than \$1.00 each but it cost much less than that to produce them. During Experiment No. 4, prices advanced so greatly that the hens actually sold at \$1.00 each at the close of the experiment, but they were not so credited. In Experiment No. 1, the net profit was \$81.15 or 36.8 per cent. on \$220.00; in Experiment No. 2, the net profit was \$74.58 or 29.5 per cent. on \$255.00; in Experiment No. 3, the net profit was \$168.48 or 35 per cent. on \$480.00; in Experiment No. 4, the net profit was \$334.08 or 74.2 per cent. on \$450.00. The profit of \$1.62 per bird in Experiment No. 4 as compared with \$0.825 in Experiment No. 3, indicates that during the year from October 1, 1916 to October 1, 1917, pullets could and did make as much profit as during preceding years when feed prices were much less.

The farm hen can and does make a good interest on the investment and pays a satisfactory labor income. Any figures that an experiment station may give from such investigations as these, are open to criticism, because much must be left to the judgment of the man doing the figuring. No attempt has been made in using these figures to mislead any one as to the possibilities in the poultry business. All kinds of changes can be made, by any farmer in the figures shown. He can increase the labor cost, cut down the egg income and increase the original value of the birds, but still the net per cent. profit will be as good or better than any other

branch of agriculture on the farm. For a farmer, the feed prices and costs would be less than those charged in the experiments, because more waste feeding materials are available and hauling charges on grains are not necessary. Figures from demonstration flocks on several Indiana farms bear out the figures in this bulletin.



Fig. 5. A stand for a water pail. Permits the use of a bucket for watering the poultry and keeps it above the floor, insuring cleanliness

For an individual making poultry an important phase of farm operations some items of expense would be greater, but they can be counter-balanced by the sale of utility hatching eggs. In Experiment No. 4, the eggs set by Purdue hatched 73 per cent. of all put into the incubators, which was considered a very good investment at six cents each, for hatching.

This investigation is being continued with yearling hens and more data will be available in the future.

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PURDUE UNIVERSITY
Agricultural Experiment Station

BULLETIN No. 212
MARCH, 1918



PLUMS AND CHERRIES

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PLUMS AND CHERRIES

JOSEPH OSKAMP

The plum and cherry are not of the first commercial importance in Indiana, but they are deserving of more intelligent management than is commonly accorded them. Of the two fruits, the cherry is grown more largely as a commercial crop than is the plum. Either fruit is preferably grown to supply the demands of a local or nearby market rather than for distant shipment. Cherries, particularly, are of a delicate and perishable nature and because of the large number of pickers necessary to harvest the crop, they should be grown near populous communities.

The chief place of these fruits in Indiana horticulture probably is in the farm orchard. Although this position may be a homely one, the universality with which plum and cherry trees appear in the dooryards of the State is ample evidence of their very wide-spread popularity.

Without going into the technical classification and bewildering subdivisions of plums and cherries, it might be well to recall at this time, owing to their slightly different requirements, that there are three main classes of cultivated plums; the European, the Japanese, and the native American plums. The Lombard and the Damson are among the most common varieties of the European plums grown in Indiana, the Burbank and the Abundance represent the Japanese type, while Wild Goose, Weaver, and Miner are popular native American sorts.

Among the cherries, the sour varieties are the only ones of importance in the State. The sweet cherries do not seem to be generally profitable, although they make an attractive tree for the lawn. The Dukes, hybrids between the sweet and sour cherry, are occasionally planted.

SITE

Plums and cherries seldom winter-kill but they are susceptible to late spring frosts; therefore a location should be selected that has an outlet to lower lands, so that the cold air may drain away. Ravines or pockets into which the cold air may settle, should be avoided.

The American plums will grow under practically all soil conditions existing in the State, from the stiff clays and black prairie lands, to soils of a pronounced sandy nature. The European varieties find their most congenial surroundings in a rather heavy loam, while the Japanese sorts show a preference for the more sandy soils.

The most important soil requirement of the cherry is good drainage, as it positively will not thrive in a wet soil. The sour cherry has a wider range of adaptation than the sweet cherry; in fact, locations in the State that seem suited in soil and climate for the profitable production of the sweet cherry are limited. It does best on a well drained, sandy loam.

PLANTING

Two year old trees are preferable for planting under normal conditions. Being larger than one-year-olds, they are not quite so apt to be run over or injured. Three year old trees, although sometimes used, do not stand the shock of transplanting so well as younger trees. The medium grade is the most profitable size to purchase. The small two year old trees are generally lacking in vigor and the abnormally large trees do not transplant so successfully.

It is a common practice to overcrowd plum and cherry trees. Plums and sour cherries should be set 18 to 20 feet apart, and sweet cherries at least 25 feet apart.

The tree holes should be large enough to allow the trees to be planted without crowding the roots. The roots should not be needlessly exposed to the wind and sun, but kept moist by the use of wet gunny sacks or other means; the tree set slightly deeper than it stood in the nursery and as the hole is being filled, the earth tramped well about the roots.

Both cherry and plum trees should be firmly and carefully planted. Cherries especially are difficult to transplant and some losses may be expected even under favorable conditions. Spring planting is generally to be preferred.

SOIL CULTURE

Cultivation of the soil will insure the best success where these fruits are grown on a commercial scale. The ground should be stirred frequently during the summer and a cover crop sowed in late summer to be turned under the following spring.

Tillage is often impractical with only a few trees, in the home orchard. In such case, a mulch of straw, shredded fodder, grass or leaves spread about the trees is very helpful in conserving the soil moisture. The drawback to a mulch system for these fruits is the protection it gives diseases and insects, particularly the plum curculio.

PRUNING

Very light pruning should be the rule. Cutting back the annual growth is seldom advisable except in certain cases to preserve the symmetry of the tree by heading-in unusually long shoots. Young plum trees may be cut back moderately at planting time, but this practice is questionable with cherries.

The shaping of the young trees should not be ignored, however. The first year, only such scaffold limbs should be saved as are sufficiently well spaced on the trunk to avoid crowding in the future, when secondary limbs are formed. The central leader may be allowed to grow for the first few years, when it will generally become suppressed or can be cut out after five or six well spaced main limbs have been produced. The trees at all times should be kept moderately open by removing crowding branches to admit light into the tops and make possible a thorough job of spraying. The necessary pruning may well be done in February or March; needless to say, all dead or unthrifty wood should be removed at once.

DISEASES

Black-knot is a common disease of the plum, and to some extent of the cherry, producing hard, charcoal-like galls on the branches.

All diseased wood should be cut out when it appears, and burned. As the spores are disseminated as early as April, it is especially desirable to have all knots removed by that time. A dormant application of one gallon of lime-sulfur solution to eight gallons of water is a good sanitary measure, but not alone effective.

Plum-pockets cause the fruit of the plum to become swollen and distorted with a spongy growth.

The dormant spray, before the buds open, using one gallon of lime-sulfur solution to eight gallons of water has given satisfactory results.

Brown-rot affects the fruit of both plums and cherries. It starts as a small brown, rotten spot and soon involves the entire fruit. The disease rapidly spreads through the orchard.

Brown-rot may be controlled by two or three summer applications of lime-sulfur solution, one to fifty. Thinning the young fruits so that they will not touch when mature, is a great aid in rot control.

Powdery mildew is occasionally seen on the shoots and leaves of the cherry, especially on young trees.

Lime-sulfur solution, one to fifty, affords satisfactory control.

Leaf-spot, sometimes called shot-hole owing to the small circular holes appearing in the leaves, is common on both plum and cherry foliage. After the leaves have become riddled with holes, they turn yellow and fall. This loss of foliage is very weakening to the tree and is the principal cause of the unthrifty appearance and unsatisfactory production of many cherry trees in Indiana.

Three applications of lime-sulfur solution, one to fifty, will hold the disease in check.

INSECTS

The Plum-curculio.—This insect is the main cause of wormy plums and cherries. The adult, a small, rough-backed snout beetle, punctures the fruit in feeding and egg laying. In the case of plums, the wormy fruit generally falls to the ground, but with cherries it frequently remains on the trees.

The adult insects hibernate in weeds, brush and rubbish, which should be cleaned up. The larvae pupate in the ground and cultivation will cause many of them to be turned up to the sun and die. The larvae of the curculio should not be confused with the cherry fruit-maggot. The former is a grub having a brownish head; the latter is smaller and is a true maggot.

Effective control consists in spraying with arsenate of lead, two pounds of paste, or one pound of powder, and two pounds of lime to 50 gallons of water. An application should be made just after the leaf buds burst, again after the petals fall, and again 10 days later.

The Pear-slug.—The adult of this insect is a four-winged fly, the larvae of which feed principally upon cherry foliage. They are covered with a slime and resemble small snails. They eat the upper surface of

the leaves leaving the skeleton of the leaves to wither and fall, sometimes defoliating the entire tree.

An application of arsenate of lead as recommended for the curculio will rid the trees of this pest. Road dust or air slaked lime will also destroy the slugs.

Aphids are small plant lice which infest the leaves, causing them to curl up.

A thorough spraying should be given the infested trees, particularly the under sides of the leaves before they curl, using one pint of nicotine-sulfate¹ and four pounds of soft soap to 100 gallons of water.

Scale Insects do not ordinarily bother the sour cherry, but are quite prevalent on the plum and sweet cherry. The San Jose Scale is the most common and serious of these pests.

Spraying the orchard thoroughly while the trees are dormant, with lime-sulfur solution, using one gallon to eight gallons of water, is effective.

The Fruit Tree-bark Beetle is a small beetle which bores into the bark, making shot-like holes which are connected beneath the bark by winding channels. Weakened and failing trees are more liable to their attacks.

All dead trees and limbs should be cut out and burned early in the spring, and the orchard cultivated, sprayed and cared for to induce a vigorous growth which will be less subject to attack. A thick whitewash applied about twice during the season will serve as a repellent to egg laying.

The Cherry Fruit-fly has been reported in the neighborhood of South Bend, as attacking the later varieties of cherries. The eggs are laid in punctures in the fruit. The young maggots are smaller than the larvae of the curculio.

Crosby² advises about a pint of sweetened poison sprinkled over the tree in large drops, which would probably attract the flies. The mixture consists of arsenate of lead three ounces, molasses one pint, and water four gallons. It can be put on with a small garden syringe, when the flies first appear and repeated every week until controlled.

SPRAY SCHEDULE

Dormant Spray.—Applied in late winter before the buds open, for San Jose scale, bladder plum, etc., and as a general sanitary measure. Not generally necessary for the sour cherry. Use concentrated lime-sulfur one gallon to eight gallons of water.³ Cover every part of the tree thoroughly.

First Summer Spray.—Applied just as the leaf buds burst in the spring, for the curculio, using one pound of powdered or two pounds of paste arsenate of lead and two pounds of hydrated lime to 50 gallons of water. If aphids are present at the time of any application, add one-half pint of nicotine-sulfate to every 50 gallons of solution.

¹ This recommendation is based on nicotine sulphate containing 40 per cent. nicotine. For nicotine sulphate of less strength, proportionally more material should be used.

² Bulletin No. 79, Part II, New York State Department of Agriculture

³ All recommendations are based on a concentrate testing 32 degrees Beaume. For other strengths, different dilutions will be necessary. (See Purdue Extension Leaflet No. 43)

Second Summer Spray.—Applied just after the petals fall for brown-rot, powdery mildew, leaf-spot and curculio, using concentrated lime-sulfur¹ diluted one to fifty and one pound of powdered or two pounds of paste arsenate of lead and two pounds of lime.

Third Summer Spray.—The same as above, applied when the fruit is about the size of buckshot.

Additional applications of a fungicide at intervals of two weeks will be necessary in many cases to control brown-rot on the plum.

Cherries should have an additional spray after the fruit is picked to control the leaf spot effectually.

POLLINATION AND VARIETIES

The failure of plums to set fruit, particularly the American and Japanese varieties, may frequently be traced to self-sterility, or the failure of the pollen of a variety to fertilize its own flowers. While the European sorts are not ordinarily considered in need of cross-fertilization, it is nevertheless advisable in setting plum orchards, to plant at least two varieties which bloom at the same time to insure proper pollination.

The sour varieties of cherries may safely be planted alone. The sweet cherries in the far west have in many cases been found wholly or partially self-sterile, but under Indiana conditions this seems to be a minor factor in limiting fruit setting. Here failure must be attributed largely to climatic and soil conditions.

The following described varieties of plums and cherries have fruited on the Station grounds. While some of these varieties have not fruited long enough so that a report on their behavior is entirely satisfactory, yet it is felt that such general information as can be given at the present time will be helpful to many who intend planting these fruits. Harvesting and blooming dates, are for the season of 1914.² The blooming dates will be valuable in selecting varieties for cross pollination. The harvesting date is the actual time at which the crop was picked for market. This would vary considerably between varieties, in different seasons, or in other localities. Those varieties marked with an asterisk are particularly suggested for the consideration of Indiana growers.

It will only be necessary to mention Opata, Sapa, Ezaptan, Sansota and Tokeya varieties of plums, which were received through the kindness of Professor N. E. Hansen. They are small in size and inferior in quality and although valuable for their hardiness, many better varieties are hardy in Indiana.

¹ For the tender Japanese varieties, the self-boiled lime-sulfur, as recommended for peaches in Purdue Experiment Station Circular No. 69, is safer.

² Phenological notes were taken by Mr. J. C. Grossman, formerly orchard foreman in the Horticultural Department

PLUMS¹

Wild Goose.*—Harvested July 22, full bloom April 27. Tree spreading, rather dense, flat top, vigorous, productive. Fruit one and one-sixteenth inches in width, slightly oval; skin bright red, thin, tough; flesh yellowish, tender, juicy, sweet, fair to good; stone adhering. A favorite early variety. American.

Climax.—Harvested July 25, full bloom April 23. Tree spreading, moderately open, flat topped, wood subject to decay organisms. Fruit large, two inches in width, cordate, halves unequal; skin dark purplish red, mottled, medium thick, slightly tough; flesh brownish yellow, juicy, tender, melting, sweet, aromatic, very good; stone adhering. Often cracks open when ripe; very early blooming makes it liable to frost injury. Its large size and good flavor would be appreciated in the home orchard. Hybrid.

Shiro.—Harvested July 25, full bloom April 25. Tree spreading, open, rather weak and subject to decay. Fruit one and one-half inches in diameter, round; skin clear yellow, thin, almost transparent; flesh yellow, juicy, flavor sweet but flat and unattractive; stone free. Hybrid.

Milton.—Harvested July 30, full bloom April 27. Tree moderately upright, dense, round top, medium size, vigorous, healthy. Fruit one and one-eighth inches in width, oblong; skin red, thin, tough; flesh dark yellow, moderately juicy, sweet, rather flat, quality fair; stone adhering. Very similar to Wild Goose and about same season. American.

Abundance.—Harvested August 2, full bloom April 23. Tree moderately spreading, rather open, round top, vigorous. Fruit one and one-half inches in width, roundish ovate; skin tough, purplish red; flesh dark yellow, tender, melting, juicy, sweet aromatic, good; stone adhering. A well known variety. Blooms early and therefore subject to late spring frosts. Must be well sprayed on account of brown-rot. Japanese.

Hale.—Harvested August 5, full bloom April 25. Tree moderately upright, round top, medium to weak. Fruit one and five-sixteenth inches in width, round; skin yellow, rather tough; flesh juicy, subacid to sweet, fairly good; stone adhering. Fruit rots badly and not a desirable market variety. Japanese.

Robinson.—Harvested August 5, full bloom April 27. Tree quite spreading, open, round top, vigorous, healthy. Fruit fifteen-sixteenths inch in diameter, round; skin bright red, thick, tough; flesh yellow, medium to soft, juicy, mild, sweet, fair; stone adhering. American.

Bartlett.—Harvested August 7, full bloom April 25. Tree decidedly upright, very dense, cone top, vigorous and healthy. Fruit one and five-sixteenths inches in diameter, round; skin purplish red, thin, tender; flesh yellow, rather dry, peculiar flavor resembling Bartlett pear; stone adhering. Not a reliable variety. Hybrid.

Weaver.—Harvested August 7, full bloom April 29. Tree spreading, vigorous. Fruit fifteen-sixteenths inch in diameter, round; skin red, thick, tough; flesh yellow, juicy, mild, fair; stone adhering. An old time variety and still planted. American.

Sultan.—Harvested August 7, full bloom April 25. Tree quite spreading, open top, only medium to below in vigor, foliage subject to shot-hole. Fruit one and one-half inches in diameter, round; skin purple, medium; flesh red, juicy, sweet, good; stone adhering. European.

Gold.—Harvested August 8, full bloom April 27. Tree moderately upright, fairly open, irregular, medium in vigor, subject to shot-hole fungus. Fruit one and three-sixteenths inches in width, roundish oblate; skin golden yellow, thick, tough; flesh yellow, juicy, subacid, fair; stone adhering. Not good enough for dessert and its color is against it on the market. Hybrid.

¹ All illustrations are natural size

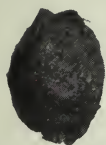


Fig. 2. America

yellowish, juicy, subacid, good; stone adhering to almost free. A plum of good size, attractive in appearance, but tree is subject to disease and often shy bearer. European.

Forest Garden.—Harvested August 12, full bloom April 28. Tree somewhat spreading, moderately open, round topped, fairly vigorous, somewhat inclined to attacks of shot-hole fungus. Fruit one and one-eighth inches in diameter, round; skin light to dark red, thick, tough; flesh yellow, juicy, with a distinctive sugary flavor, fairly good; stone almost free. American.

Cheney.—Harvested August 12, full bloom April 28. Tree moderately spreading, rather dense, round top, susceptible to shot-hole fungus. Fruit one and one-sixteenth inches in width, roundish oval; skin dark red over yellow, thick, tough; flesh yellow, juicy, fair; stone adhering. Not generally desirable. American.

Newman.—Harvested August 15, full bloom April 27. Tree spreading, dense, flat top, medium in vigor. Fruit seven-eighths inch in width, oval; skin bright red, medium, tough; flesh yellow, subacid, fair; stone adhering. Fruit small and not particularly attractive. American.

Chabot.*—Harvested August 17, full bloom April 25. Tree moderately spreading, rather open, large, fairly vigorous and healthy. Fruit one and three-eighths inches in diameter, roundish conical, almost cordate; skin light red over yellow, medium; flesh yellow, firm, moderately juicy, almost sweet, good; stone adhering. Blooms slightly later than some Japanese varieties. Japanese.

Yellow Egg.—Harvested August 18, full bloom April 28. Tree moderately upright, rather dense, round top, medium large, fairly thrifty. Fruit one and one-half inches in diameter; oval;

America.*—Harvested August 10, full bloom April 25. Tree spreading, moderately open, round top, vigorous, healthy. Fruit roundish oblate, one and one-half inches in diameter; skin bright red, medium to thin; flesh yellow, juicy, sweet to subacid, fair to good; stone adhering. A reliable variety. Hybrid.

Burbank.*—Harvested August 12, full bloom April 25. Tree spreading, moderately open, flat top, vigorous, healthy, but some shot-hole fungus. Fruit one and one-half inches in width, roundish conical; skin dark red over yellow, thin, tough; flesh rich yellow, firm, meaty, melting, juicy, sweet, good; stone adhering. Hardy, healthy and fairly regular bearer for plum of its class. Japanese.

Wolf.—Harvested August 12, full bloom April 28. Tree moderately upright to spreading, rather open, round top, vigorous. Fruit one inch to below in diameter, roundish oval; skin dark red, thick, tough; flesh yellow, juicy, sweet, fair; stone free or nearly so. American.

Niagara.—(Bradshaw) Harvested August 12, full bloom April 28. Tree upright, dense, irregular top, susceptible to shot-hole fungus and wood decaying organisms. Fruit one and one-half inches in width, oval; skin dark blue over red, rather thick; flesh



Fig. 3. Burbank



Fig. 4. Surprise

skin clear yellow, thick; flesh yellow, coarse, subacid to sweet, fair quality; stone free. A plum of good size but lacking quality. European.

Pottawattamie.—Harvested August 19, full bloom April 27. Tree spreading, open, round top, vigorous. Fruit seven-eighths inch in width, almost round; skin bright red, rather thin, very tough; flesh yellow, watery when ripe, sweet, good; stone adhering. Although small, the fruit is sweet and good out of hand and the tree is a heavy cropper. American.

Wyant.—Harvested August 22, full bloom April 28. Tree moderately spreading, dense, round top, rather small, vigorous and healthy. Fruit one and one-eighth inches in width, oblique, compressed; skin purplish red, thick, tough; flesh yellow, juicy, fair in quality; stone free. Hybrid.

Hawkeye.—Harvested August 22, full bloom April 28. Tree moderately upright, dense, round top to irregular, healthy. Fruit one and one-eighth inches in diameter, round; skin dark red, thick, tough; flesh yellow, rather soft, juicy, sweet, quality fair to good; stone almost free. American.

Surprise.*—Harvested August 24, full bloom April 28. Tree moderately upright, dense, round top, vigorous, healthy. Fruit one and one-eighth inches in diameter, round; skin dark red, thick, tough; flesh yellow, juicy, sweet, fair to good; stone almost free. A native plum well worthy of more extended planting. American.

Lombard.*—Harvested August 26, full bloom April 27. Tree moderately upright, rather open, round topped, healthy. Fruit one and one-half inches in width, form oval, flattened at cavity; skin purplish red, rather thin, tender; flesh yellow, firm, meaty, juicy, sweet, fair; stone sometimes free. A standard variety, suitable for home or commercial planting although subject to brown-rot. European.

DeSoto.*—Harvested August 28, full bloom May 5. Tree spreading, open, round top, irregular, small, some injury by shot-hole fungus. Fruit one inch in diameter; skin light red, thick, tough; flesh yellow, tender, juicy, mild, fair; stone almost free. A late bloomer. Worthy of trial. American.

October Purple.—Harvested August 28, full bloom April 23. Tree moderately upright, fairly open, irregular, moderately vigorous, susceptible to shot-hole fungus. Fruit one and one-half inches in width, roundish oval to cordate; skin purple, thin, tough; flesh yellow, juicy, sweet, fairly good; stone adhering. Not especially desirable in tree or fruit characters. Japanese.

Pond.—Harvested August 29, full bloom April 28. Tree upright, dense, irregular, healthy, vigorous. Fruit large, variable, oval, necked; skin reddish purple, medium; flesh yellow, firm, meaty, sweet, fair; stone partially adhering. European.

Omaha.*—Harvested August 29, full bloom April 25. Tree spreading, open, irregular, vigorous, healthy. Fruit one and three-eighths inches in diameter, round; skin light red over yellow, thin, tender; flesh yellow, melting, juicy, sweet, good; stone adhering. Commendable in size and quality. Hybrid.



Fig. 5. Lombard

Arctic.*—(Moore's Arctic.) Harvested September 1, full bloom April 27. Tree moderately upright, dense, round top, vigorous, healthy. Fruit one and one-fourth inches in diameter, roundish oval; skin dark blue, medium; flesh yellow, firm, moderately juicy, subacid, fair; stone almost free. Good for preserving. European.

Diamond.—Harvested September 1, full bloom April 25. Tree upright to spreading, rather dense, round top, healthy, vigorous. Fruit one and five-sixteenths inches in width, oval; skin deep purple, thin, tough; flesh yellow, firm, coarse, tender, rather dry, subacid, fair; stone partially adhering. Not valuable as a dessert plum but sufficiently attractive for market. European.

Purple Egg.—(Hudson) Harvested September 1, full bloom April 28. Tree upright to spreading, round top, large, vigorous, healthy. Fruit one and three-eighths inches in width, oval; skin dark reddish purple, thin, tender; flesh yellow, a trace of red at pit, firm, meaty, moderately juicy, subacid to sweet; stone adhering. European.

Monarch.*—Harvested September 1, full bloom April 28. Tree moderately upright, rather dense, irregular top, vigorous, somewhat subject to fungi. Fruit one and three-fourths inches wide, generally roundish; skin purple, rather thin, tender; flesh yellow, firm, meaty, juicy, subacid to sweet, good; stone free. Suitable for dessert or market, but requires late spraying for rot. European.

Miner.—Harvested September 1, full bloom April 29. Tree moderately upright, dense, round top, vigorous, fairly healthy. Fruit one and one thirty-second inches in diameter, round; skin red, thick, tough; flesh tender, juicy, sweet, good; stone adhering. An old variety and still good. American.

Arch Duke.*—Harvested September 3, full bloom April 25. Tree upright, dense, irregular top, fairly healthy, vigorous. Fruit one and three-eighths inches in width, oval, necked; skin dark purple, medium; flesh yellow, firm, meaty, mild subacid to sweet, good; stone free. Not the best to eat out of hand, but good for culinary use and excellent for shipping. European.

Shropshire.*—(Damson) Harvested September 3, full bloom April 27. Tree upright, dense, round top, vigorous,

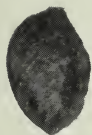


Fig. 6. Arctic



Fig. 7. Monarch



Fig. 8. Shropshire

hardy, healthy. Fruit one inch in width, oval; skin purple to black, thin; flesh greenish yellow, coarse, juicy, acid, fair; stone adhering. One of the best plums of the Damson type, so popular for preserves, etc. Has a place in either the home or commercial orchard. European.

German Prune.—Harvested September 10, full bloom, April 28. Tree spreading, rather open, irregular top, vigorous, healthy. Fruit small, oval to ovate, halves unequal; skin dark purple, rather thin, tough; flesh greenish yellow, firm, somewhat dry, subacid, fair; stone free. Planting is not to be encouraged on account of small size and inferior quality. European.

Green Gage.*—(Bavay) Harvested September 20, full bloom April 25. Tree moderately upright, round top, fairly vigorous and healthy. Fruit one and seven-sixteenths inches in width, roundish oval; skin greenish yellow, thick, tough; flesh rich yellow, firm, meaty; juicy, sweet, mild, very good; stone free. One of the favorites in the home orchard and equally good for market. European.

Grand Duke.*—Harvested September 15, full bloom April 28. Tree moderately upright, dense, round top, vigorous, healthy. Fruit one and five-eighths inches in width, long oval, halves unequal; skin purple, thick, rather tough; flesh yellow, firm, meaty, mild, sweet, fairly good; stone adhering. Rather free from rot and a good market variety. European.

CHERRIES

Dyehouse.—Slightly earlier and fruit smaller than early Richmond but more exacting as to soil conditions than that variety.

Early Richmond.*—Harvested June 15, full bloom April 28. Tree medium size, spreading, rather dense, round top, vigorous, healthy. Fruit medium size, round; skin thin, bright red; flesh white, acid. The most popular early sour cherry.

Baldwin.—Harvested June 20, full bloom April 27. Tree large, upright, dense, round top, vigorous, healthy, unproductive. Fruit medium size; round; skin dark red, tough; flesh red, acid, good.

Montmerency.*—Harvested July 1, full bloom May 1. Tree large, upright, dense, round top, vigorous, healthy. Fruit medium size, roundish oblate; skin bright red, thin; flesh yellowish, tender, moderately acid, good. The favorite in Indiana for both home and commercial planting.

English Morello.—(Said to be identical with Ragg.) Very late sour cherry. Tree dwarfish in habit and lacking in vigor. Fruit almost black with rich, deep red flesh and juice; very astringent until fully ripe. The variety is subject to the attacks of the cherry fruit-fly where this insect is found.

Several varieties of sweet cherries and their hybrids have been tried at this station. They have given only one crop worthy of the name in the last six years, although the trees make a very thrifty growth. This seems to be the general experience over the State with possibly a few local exceptions. Such being the case it has not been thought worth while to include descriptions. If one must plant sweet cherries, the Napoleon is one of the best light-colored, firm-fleshed varieties, and the Windsor one of the best dark-fleshed sorts.



Fig. 9. Grand Duke

B

PURDUE UNIVERSITY

Agricultural Experiment Station

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Fig. 1. Effect of ground limestone on alfalfa, Knox County, 1916. Where no limestone was applied there was no alfalfa

THE VALUE OF LIME ON INDIANA SOILS

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U. S. A.

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THE VALUE OF LIME ON INDIANA SOILS

A. T. WIANCKO

S. D. CONNER

S. C. JONES

SUMMARY

Clover will not thrive on acid soils.

Liming is the only practical means of correcting soil acidity.

Three-fourths of the soils of Indiana are acid and in need of liming.

About one-fourth of our soils is so very acid that clover fails almost every time it is sown.

About one-half of our soils is of slight to medium acidity and clover will fail whenever the weather conditions are at all unfavorable.

Only about one-fourth of the soils of Indiana is well enough supplied with lime to enable clover to develop properly.

A liberal application of pulverized limestone or some other form of lime is needed to insure a clover crop on any acid soil.

Wherever clover fails to thrive, the soil should be tested for acidity.

If the soil is acid enough to need liming at all, at least two tons per acre of ground limestone or its equivalent in other forms of lime should be applied.

Ground limestone may be applied at any time, but the best plan is to apply it on plowed ground and disk it into the surface soil.

Lime will often produce immediate increases in grain and other crops, but the greatest benefit derived from it comes through increasing clover and other legumes in the rotation.

Following a good clover crop, it is possible to grow good grain or other crops.

The greater the proportion of legumes that can be turned under, either directly or in the form of manure, the easier it will be to maintain the fertility of the soil.

Lime is not a fertilizer. Manure or fertilizer, or both, should be used in addition to lime.

On seven experiment fields in different parts of the State, ground limestone has produced crop increases worth from \$10.50 to \$67.70 per acre per rotation of corn, wheat and clover. The average net profit has been \$6.78 per acre per year, and \$2.68 per dollar invested.

INTRODUCTION

Increasing crop yields from a few bushels of corn or wheat to 80 bushels of corn and 30 bushels of wheat per acre, is the problem that confronts thousands of Indiana farmers.

The Purdue University Agricultural Experiment Station through its Department of Soils and Crops has been conducting extensive soil improvement experiments in many parts of the State. It is determining in a practical way through its field investigations, the value of the different practices, methods and materials involved, in permanent increase in soil fertility.

The value and use of lime as one of several essentials in soil improvement, is reported in this bulletin. The average yields given, in-

clude the low yields of the first years and any crop failures resulting from adverse weather conditions. The use of lime, legumes, phosphorus and drainage has made it possible to double and treble the yields on these experiment fields in five years.

Indiana soils have been depleted in organic matter and nitrogen more than in anything else, and to profitably increase the supply of these valuable soil constituents, it is necessary to grow more legumes than are now grown. Lime is of great importance in increasing the fertility of Indiana soils and is the key to increased legume production.

Three-fourths of the cultivated lands of Indiana are acid in reaction. About 25 per cent. of our soils is so very acid that clover will fail almost every year. On about 50 per cent. of the cultivated lands, clover fails whenever the season is at all unfavorable. The remaining one-fourth of our soils is well supplied with lime, and clover failures are seldom known. It is possible by the use of lime to insure the growth of clover on practically all the soils of the State.

Lime will often produce immediate increases in corn, wheat and other crops, but the greatest increases will come after it has exerted its effect on the clover or other legume in the rotation.

This bulletin presents the results that have been secured by this station during the last 12 years from the use of lime in the form of finely ground limestone, on seven experiment fields on different soil types in different parts of the State. The crop yields that have been secured with and without lime on the different fields are presented in the following pages, together with brief descriptions of the conditions under which the experiments were conducted and concise discussions of the results.

THE SCOTTSBURG FIELD

The experiment field at Scottsburg, Scott County, is located on Volusia silt loam, commonly called "yellow clay," which is the predominating soil type on the hill and rolling lands of southern Indiana. The soil is of medium acidity with a very acid subsoil. Pulverized limestone was applied in 1906 at the rate of 1000 pounds per acre and in 1911 at the rate of 4000 pounds per acre.

In Table I are shown the average yields of corn, wheat and clover on the limed plot and on the untreated plot alongside. The small average yields on this land indicate the impoverished condition of the soil brought about by many years of exhaustive cropping. In these experi-

TABLE I.—Results from Ground Limestone on a Corn, Wheat and Clover Rotation—Scottsburg Experiment Field, 1906-1917

| Treatment | Average yields per acre | | | | | Average totals per acre per rotation | | |
|-------------------------|-------------------------|----------------|----------------|---------------|-------------|--------------------------------------|-------------------|-------------|
| | Corn, bushels | Stover, pounds | Wheat, bushels | Straw, pounds | Hay, pounds | Value of increase | Cost of treatment | Net returns |
| Nothing ----- | 23.0 | 2163 | 8.1 | 748 | 379 | | | |
| Lime ----- | 29.9 | 2551 | 10.2 | 915 | 578 | | | |
| Increase for lime ----- | 6.9 | 388 | 2.1 | 167 | 199 | \$14.67 | \$3.11 | \$11.56 |

ments all the produce has been removed from the land except the small amount of second growth clover, which has been plowed under.

Table I shows also that the liming has produced good increases in the yields of all the crops as compared with the small yields on the untreated land, the net value of the increase being \$11.56 per acre per rotation, or \$3.85 per acre per year for the entire 12 years. The profit per dollar invested has been \$3.72.¹ Liming alone is not sufficient to produce good crops on this land. With better treatment, using manure in addition to the liming, the average yield of corn has been over 50 bushels per acre, wheat has averaged 19 bushels and the clover crop has been over three times as large as where lime alone was used.

THE NORTH VERNON FIELD

The experiment field at North Vernon in Jennings County is located on the whitish silt loam soil, commonly known as "slash land." This type of soil is flat, poorly drained and naturally rather poor but capable



Fig. 2. Effect of ground limestone on clover, North Vernon field, 1916. Each shock is the produce of one-twentieth acre

Manure only
3560 pounds hay per acre

Manure and limestone
5520 pounds hay per acre

of raising large crops if properly drained and treated. The soil is very acid and the subsoil still more acid than the surface. After thorough tile drainage of the land, pulverized limestone was applied in 1912 at the rate of four tons per acre. In addition, this land receives a six-ton dressing of stable manure plowed under for corn once in three years. All the crops have been removed from the land except the second growth clover, which has been plowed under.

¹Throughout this bulletin the crop increases produced have been valued as follows: corn, \$1.00; wheat, \$2.00; oats, 70 cents; soybeans, \$3.00 per bushel; corn stover, \$6.00; wheat straw, \$5.00; oats straw, \$6.00 and hay, \$20.00 each per ton. Ground limestone has been valued at \$3.00 per ton on the field.

TABLE II.—Results from Ground Limestone on a Corn, Wheat and Clover Rotation—North Vernon Experiment Field, 1913-1917

| Treatment | Average yields per acre | | | | | Average totals per acre per rotation | | |
|-------------------------|-------------------------|----------------|----------------|---------------|-------------|--------------------------------------|-------------------|-------------|
| | Corn, bushels | Stover, pounds | Wheat, bushels | Straw, pounds | Hay, pounds | Value of increase | Cost of treatment | Net returns |
| Manure ----- | 62.3 | 3849 | 10.5 | 1230 | 2725 | | | |
| Manure and lime ----- | 72.9 | 4928 | 20.1 | 1880 | 3700 | | | |
| Increase for lime ----- | 10.6 | 1079 | 9.6 | 650 | 975 | \$44.41 | \$6.00 | \$38.41 |

Table II shows that liming has proven to be of great importance on this soil and has produced large increases on all of the crops in the rotation. It should be noted that the liming has shown these good results on land which was well manured and already producing good crops. The wheat yields were not what they might have been, because of considerable Hessian fly damage in two out of the five years that this experiment has been running. It will be seen that the net profit has been \$38.41 per acre for each round of the rotation, or \$12.80 per acre per year. For each dollar spent for lime on this land, the crop increases have been enough to pay back the dollar and give a clear profit of \$6.40.

It is worthy of note that on land across the fence to the west, which until five years ago was a part of the same field, the 1916 corn crop was not worth husking, while in the experiment field the average yield was 67.9 bushels per acre. On a field to the south, which was considered better land, except that it was not tile drained, the 1917 corn yield was about 30 bushels per acre, while in the experiment field the average yield was 78.5 bushels per acre. These differences, of course, are due in large part to the fact that the experiment field is well tile drained, while the adjoining fields have only surface drainage.

THE WORTHINGTON FIELD

This field is located near Worthington, Greene County, on Knox silt loam, commonly called "clay." This is the predominating soil type of the rolling uplands of that section of the State and is very similar to much of the light colored so-called "clay" soils of central Indiana. The land had been exhaustively cropped for a number of years and was very much run down. The soil was quite acid, with a very acid subsoil. The field was laid out and tile drained in the fall of 1911, and in the spring of 1912 pulverized limestone was applied at the rate of two tons per acre on manured land. The manuring has been at the rate of six tons per acre plowed under for corn once in three years. All the crops have been removed from the land except the second growth clover, which has been plowed under.



Fig. 3. Effect of ground limestone on corn, Worthington field, 1917. Each shock is the produce of one-twentieth acre
 Manure only 35.6 bushels corn per acre
 Manure and limestone 49.3 bushels corn per acre

TABLE III.—Results from Ground Limestone on a Corn, Wheat and Clover Rotation—Worthington Experiment Field, 1913-1917

| Treatment | Average yields per acre | | | | | Average totals per acre per rotation | | |
|-------------------------|-------------------------|----------------|----------------|---------------|-------------|--------------------------------------|-------------------|-------------|
| | Corn, bushels | Stover, pounds | Wheat, bushels | Straw, pounds | Hay, pounds | Value of increase | Cost of treatment | Net returns |
| Manure ----- | 31.1 | 2297 | 9.9 | 792 | 2623 | | | |
| Manure and lime ----- | 39.3 | 2671 | 12.3 | 1142 | 4680 | | | |
| Increase for lime ----- | 8.2 | 374 | 2.4 | 350 | 2057 | \$35.56 | \$3.00 | \$32.56 |

In Table III are shown the average annual crop yields, the increases produced by liming over and above manuring and the financial results. As at North Vernon, the liming has increased all of the crops, giving a profit of \$32.56 per acre per rotation, or \$10.85 per acre per year and the same amount per dollar invested in the limestone.

The relatively low grain yields on this field were due to two seasons of extremely dry weather for the corn and one entire failure of the wheat crop due to winterkilling. That this land is being improved is borne out by the fact that the lime and manure treatment last year produced 56 bushels of corn and the 30 bushels of wheat per acre.

THE BEDFORD FIELD

This experiment field is located on the Moses Fell Annex Farm near Bedford, Lawrence County, on a medium acid, yellowish-brown silt loam soil which is representative of much of the upland of Lawrence and adjoining counties. The field was laid out and thoroughly tile drained in



Fig. 4. Effect of ground limestone on clover, Worthington field, 1917. Each shock is the produce of one-twentieth acre

Manure and limestone
6460 pounds hay per acre

Manure only
3740 pounds hay per acre

1915. Pulverized limestone was applied at the rate of four tons per acre. The manuring has been at the rate of six tons per acre plowed under for corn. All the crops have been removed from the land except a light soybean crop, which was plowed under for the 1917 corn crop.

TABLE IV.—Results from Ground Limestone on a Corn, Wheat and Clover Rotation—Bedford Experiment Field, 1916-1917

| Treatment | Average yields per acre | | | | | Average totals per acre per rotation | | |
|-------------------------|-------------------------|----------------|----------------|---------------|-------------|--------------------------------------|-------------------|-------------|
| | Corn, bushels | Stover, pounds | Wheat, bushels | Straw, pounds | Hay, pounds | Value of increase | Cost of treatment | Net returns |
| Manure ----- | 41.2 | 2012 | 1.7 | 385 | 1000 | | | |
| Manure and lime ----- | 44.1 | 2407 | 2.6 | 485 | 1440 | | | |
| Increase for lime ----- | 2.9 | 395 | 0.9 | 100 | 440 | \$10.53 | \$12.00 | \$-1.47 |

In Table IV are shown the average yields of corn, wheat and clover, the increases produced by the limestone and the financial results. This field has been operated two years only and although the value of the increase from liming has been \$10.53 per acre it has not been sufficient to pay for the four-ton application of ground limestone. On this land even thorough liming and manuring are not sufficient to produce the most profitable crops. The addition of acid phosphate has increased the average yield of corn to 63.5 bushels of corn per acre and the yield of clover to two tons per acre. Due to winterkilling and much Hessian fly damage, the wheat crops of both 1916 and 1917 were almost complete failures, as

can be seen by the small yields. Had there been reasonable wheat crops, the liming would doubtless have paid for itself in the first two years after application, although enough was applied to last for several years longer.

THE WESTPORT FIELD

This experiment field is located near Westport in Decatur County on a flat, whitish silt loam soil very similar to that of the North Vernon field. The Westport soil is quite acid but not as acid as that on the North Vernon field. Pulverized limestone was applied at the rate of four tons per acre in 1915, at which time half of the field was tile drained. In Table V the results secured on the drained and undrained portions of the field are presented separately, since they show quite a marked difference in the results. Tests of the soil acidity on the drained and undrained parts of this field indicate that the drainage has materially decreased the acidity. This is also borne out by the fact that the limestone has been much more profitable on the undrained than on the drained land. A commercial fertilizer containing 10 per cent. of available phosphoric acid and 5 per cent. potash has been used on both the limed and unlimed land alike at the rate of 500 pounds per acre per rotation. All the crops have been removed from the land except the second growth clover.

TABLE V.—Results from Ground Limestone on a Corn, Wheat and Clover Rotation—Westport Experiment Field, 1916-1917

| Treatment | Average yields per acre | | | | | Average totals per acre per rotation | | |
|--------------------------|-------------------------|----------------|----------------|---------------|-------------|--------------------------------------|-------------------|-------------|
| | Corn, bushels | Stover, pounds | Wheat, bushels | Straw, pounds | Hay, pounds | Value of increase | Cost of treatment | Net returns |
| Tile-drained land | | | | | | | | |
| Fertilizer ----- | 49.9 | 2794 | 8.3 | 675 | 4130 | | | |
| Fertilizer and lime----- | 59.5 | 3289 | 10.0 | 800 | 4310 | | | |
| Increase for lime ----- | 9.6 | 495 | 1.7 | 125 | 180 | \$16.60 | \$12.00 | \$4.60 |
| Undrained land | | | | | | | | |
| Fertilizer ----- | 19.5 | 1509 | 3.1 | 252 | 3430 | | | |
| Fertilizer and lime----- | 34.6 | 1923 | 4.3 | 343 | 3670 | | | |
| Increase for lime ----- | 15.1 | 414 | 1.2 | 91 | 240 | \$21.36 | \$12.00 | \$9.36 |

In Table V, it will be seen that at present crop prices, the liming has been more than paid for in the first two years, although the application has been heavy enough to last for several years longer. The net profit per acre per rotation has been \$4.60 on the tiled land and \$9.36 on the untiled land. This is not an argument against drainage, since the drained land produced much larger crops without liming than the undrained land did with liming. The tile drainage has in itself increased the value of the crops produced on these plots, \$13.44 per acre per year. The low average wheat yields on this field were due to winterkilling and Hessian fly damage.

THE FRANCISCO FIELD

This field is located near Francisco in Gibson County on a medium acid, yellowish-brown silt loam soil characteristic of the loessial rolling uplands of southwestern Indiana. The field was started in the fall of 1915, at which time pulverized limestone was applied at the rate of three tons per acre. In Table VI are shown the average annual crop yields on the limed and unlimed land, the increases due to liming and the financial results. All the crops have been removed from the land.

TABLE VI.—Results from Ground Limestone on a Corn, Wheat and Clover Rotation—Francisco Experiment Field, 1916-1917

| Treatment | Average yields per acre | | | | | Average totals per acre per rotation | | |
|-------------------------|-------------------------|----------------|----------------|---------------|-------------|--------------------------------------|-------------------|-------------|
| | Corn, bushels | Stover, pounds | Wheat, bushels | Straw, pounds | Hay, pounds | Value of increase | Cost of treatment | Net returns |
| Unlimed ----- | 33.9 | 3146 | 5.9 | 659 | 1583 | | | |
| Limed ----- | 46.7 | 3940 | 9.6 | 881 | 1918 | | | |
| Increase for lime ----- | 12.8 | 794 | 3.7 | 222 | 335 | \$26.49 | \$9.00 | \$17.49 |

Although the experiments on the Francisco field have been running only two years, the three-ton application of ground limestone has shown good increases on all the crops in the rotation, the gross return amounting to \$26.49 per acre for the three crops. The net return per acre per rotation has been \$17.49 and the profit per dollar invested has been \$1.94. The wheat on this field has not yet had the benefit of a legume; when it does, better yields may be expected.

THE WANATAH FIELD

This field is located near Wanatah in Laporte County on a very acid, black, sandy soil. This is a prairie soil and had never been cultivated before the experiment field was laid out in 1909. There are several thousand acres of this type of soil in the Kankakee region of Indiana which are absolutely worthless for cultivation until after they are limed. In this experiment, pulverized limestone was applied at the rate of four tons to the acre on untreated land and also on fertilized land, as shown in the following table. On the fertilized land 400 pounds per acre of 2-10-8 fertilizer have been applied per rotation.

TABLE VII.—Results from Ground Limestone on a Corn, Oats and Legume Rotation—Wanatah Experiment Field, 1910-1914

| Treatment | Average yields per acre | | | | | | Average totals per acre per rotation | | |
|---------------------------|-------------------------|----------------|---------------|---------------|---------------------|--------------------------|--------------------------------------|-------------------|-------------|
| | Corn, bushels | Stover, pounds | Oats, bushels | Straw, pounds | Legume ¹ | | Value of increase | Cost of treatment | Net returns |
| | | | | | Hay, pounds (half) | Soy-beans bushels (half) | | | |
| Nothing ----- | 2.8 | 273 | 6.7 | 285 | 700 | 10.3 | | | |
| Lime ----- | 15.6 | 985 | 6.3 | 272 | 1100 | 14.1 | | | |
| Increase for lime | 12.8 | 662 | -0.4 | -13 | 400 | 3.8 | \$22.16 | \$8.10 | \$14.06 |
| Fertilizer ----- | 2.3 | 167 | 22.3 | 951 | 500 | 9.5 | | | |
| Fertilizer and lime ----- | 32.8 | 1976 | 34.7 | 1481 | 1950 | 19.0 | | | |
| Increase for lime | 30.5 | 1809 | 12.4 | 530 | 1450 | 9.5 | \$67.70 | \$8.10 | \$55.60 |

¹Only half of the soybean crop and half of the hay crop have been counted in computing the value of the increase, because each was grown half of the time in the three-year rotation

As will be noted in Table VII, it is necessary not only to use lime but to use fertilizer also. The results on this field are good proof of the fact that lime cannot take the place of fertilizer and that fertilizer cannot take the place of lime. It is only when both are provided for, that maximum results can be obtained. The profit from liming on the fertilized land has been \$55.60 per acre per rotation as against \$14.06 on the unfertilized land. The profit per dollar invested has been \$1.73 on the unfertilized land and \$6.86 on the fertilized land.

AVERAGE OF ALL FIELDS

Counting all of the crops raised, there have been about 100 tests of limestone on the seven experiment fields reported in this bulletin. The average rate of application has been three and one-half tons per acre. The average value of the increase per acre per year has been \$9.31 and for each dollar invested in limestone, the average net profit has been \$2.68

HOW TO TELL WHEN A SOIL NEEDS LIMING

When clover persistently fails to make a satisfactory growth, it is a good indication of soil acidity and the need of liming.

When red sorrel (*Rumex acetosella*) tends to crowd out clover and grass, it is a very good indication of soil acidity.

Soil acidity can be tested by means of blue litmus paper, which is turned pink when in contact with acid soil.

Dark colored acid soils will partly dissolve in ammonia water, giving a dark colored solution. When such soils are well supplied with lime, they will give a clear solution after settling in ammonia water.

Besides the above tests, there are a number of laboratory methods for determining the degree of soil acidity. Many county agricultural agents are equipped to make such tests. If the local county agent is not

able to decide whether or not a soil is acid, the Soils and Crops Department of the Experiment Station will make tests for farmers, free of cost.

For full details about making soil acidity tests and for determining the lime and fertilizer requirements of soils, see Circular No. 66 of this station, copies of which may be had upon application.

THE KIND OF LIME TO USE

Ground limestone, burned lime, hydrated lime, air-slaked lime, refuse lime and marl may all be used for neutralizing soil acidity. Which of these different forms of lime should be used in any particular case should be determined by the cost at which a given amount of calcium carbonate or its equivalent, in a reasonably fine condition, can be delivered to the soil. Aside from this, there is no good reason for discriminating against any of these materials. Neither should magnesian limestone be considered either more or less valuable than the ordinary calcium limestone.

Theoretically, 100 pounds of finely ground limestone, 56 pounds of freshly burned lime, 74 pounds of hydrated lime, and about 90 pounds of air-slaked lime have equal acid neutralizing power. In calculating the cost, the price of the material, the freight if any, the cost of hauling and the labor involved in spreading it on the land, should be taken into account. If finely ground limestone can be secured delivered at the nearest railroad station at \$2.00 per ton, then, allowing for the smaller cost of handling equivalent amounts of the more concentrated forms, fresh, burnt lime should be secured at the Station for \$4.00, hydrated lime for \$3.00, and air-slaked lime for about \$2.40 per ton.

Usually ground limestone will be the most economical and most satisfactory material to use. A number of concerns all over the State are producing good grades of ground limestone at reasonable prices. In considering the price, the fineness of grinding and the freight rate must be taken into account. The fine material is worth more than the coarse. If coarse material is used, it will require more to get the same immediate acid neutralizing effect. A good grade of ground limestone should be fine enough so that all will pass through a 10-mesh sieve, one-half through a 40-mesh sieve, and one-quarter through a 100-mesh sieve. The objection to coarse material, such as screenings, is that it acts too slowly. Only the fine dust will act immediately.

THE AMOUNT OF LIMESTONE TO APPLY

If a soil is acid enough to require liming at all, it will pay to apply at least two tons of finely ground limestone to the acre. Some soils may require as much as four tons to the acre.

After the first application, one or two tons per acre applied every six to eight years will usually be sufficient to keep the soil in good condition.

WHEN AND HOW TO APPLY GROUND LIMESTONE

Liming may be done whenever it is convenient. The best time is when preparing the seed bed for a crop after plowing either in spring or fall. It should not be plowed under unless the ground can be thoroughly

disked after applying the lime and before plowing. In case a crop that particularly needs lime, such as alfalfa, has been sown before discovering that the soil is acid, a surface application of pulverized limestone may be made satisfactorily. Such a surface application may save the crop by neutralizing acidity through the lime being dissolved and carried down into the soil by rain water.

The best way to apply any form of lime is by means of a machine specially made for this purpose, and when any considerable acreage is to be limed it will pay to purchase one of these machines. When only a



Fig. 5. Spreading ground limestone

small acreage is to be limed, it may be spread by hand with a shovel, with a manure spreader, using a little manure to make enough bulk, or through a large capacity fertilizer attachment on a modern grain drill, going over the ground often enough to put on the required amount.

THE HOME GRINDING OF LIMESTONE

In some localities, deposits of limestone are found so near to the land that is to be limed that it may be cheaper to buy or hire a portable grinding outfit than to buy the ready ground limestone and have it shipped in from a distance. Whether or not such local or home grinding will pay must be determined in each particular case after finding out what the delivered cost of the ready ground material would be. Sometimes a number of farmers having a convenient deposit of limestone in the neighborhood can club together, buy a portable pulverizer, and prepare what ground limestone they need at considerably less cost than the purchased material. Other cases have come to our notice where it did not pay either to buy or hire a portable grinder. Counting the cost or

rental of the machine and the labor of quarrying and handling the stone, there may be no saving, and the cost may be even greater than in using purchased material.

LIME IS NOT A FERTILIZER

Neither ground limestone nor any other form of lime will take the place of fertilizer or manure, nor will manure or fertilizer take the place of lime. This is well illustrated in the results obtained on the Wanatah experiment field. In that case, as may be seen from Table VII, neither fertilizer alone nor lime alone produced large yields, but when the two were combined, very satisfactory yields were obtained. On the North Vernon and Worthington fields, liming has produced very profitable returns on manured land where the manure itself had already produced large increases in the crop yields.

In this connection it should be further stated that in order to get the best results from liming, provision must be made to replenish the organic matter and nitrogen of the soil. The best way to do this is to grow more legumes and to conserve carefully and turn under all manures and crop residues.

SOURCES OF LIME, LIME SPREADERS, AND LIMESTONE PULVERIZERS

There are many places in Indiana and nearby in neighboring states where various forms of lime may be secured. Information concerning convenient sources will be gladly furnished by the Soils and Crops Department.

The Department will also supply the addresses of the principal makers of lime spreaders and of the makers of portable crushers for home grinding. Suggestions for home-made spreaders can also be supplied.

GENERAL RECOMMENDATIONS

1. Adopt a systematic rotation of crops, including clover or some other legume at least once every three or four years.
2. Wherever clover fails to do well, apply two or more tons of ground limestone to the acre.
3. See that the land is properly drained and practice good tillage methods.
4. Feed as much of the produce as possible and carefully conserve and return to the land the manure produced, as well as any unused crop residues.
5. Apply from 150 to 200 pounds per acre of acid phosphate or some other available phosphate to each grain crop in the rotation. In a permanent system, where manure is applied for corn, enough phosphate for the whole rotation may be most conveniently applied when seeding wheat or oats. Under certain systems of farming, where the crops are not all fed on the farm, it will pay, under normal conditions, to add some nitrogen and potash in the fertilizer.
6. If acid phosphate or other available phosphate cannot be secured, a mixed fertilizer as high as possible in available phosphoric acid should be used.

SOME MANUFACTURERS OF GROUND LIMESTONE ¹

| Firm name | Postal address |
|--------------------------------------|--------------------|
| A. & C. Stone and Lime Co., | Indianapolis, Ind. |
| Brownell Improvement Co., | Chicago, Ill. |
| Casparis Stone Co., | Kenneth, Ind. |
| Dolese and Shepard Co., | Chicago, Ill. |
| Dolomite Products Co., | Maple Grove, Ohio |
| Erie Stone Co., | Huntington, Ind. |
| Farmers Ground Limestone Co., | Richmond, Ind. |
| Greely Stone Co., | St. Paul, Ind. |
| Hoadley Stone Co., | Bloomington, Ind. |
| Lehigh Stone Co., | Kankakee, Ill. |
| Logansport Stone & Construction Co., | Huntington, Ind. |
| Louisville Cement Co., | Louisville, Ky. |
| Mitchell Lime Co., | Mitchell, Ind. |
| Monon Crushed Stone Co., | Monon, Ind. |
| Muncie Stone and Lime Co., | Muncie, Ind. |
| Newton Stone Co., | Kentland, Ind. |
| Perry Stone Co., | Ellettsville, Ind. |
| The Solvay Process Co., | Detroit, Mich. |
| Spencer Stone Co., | Spencer, Ind. |
| Stone Products Co., | Bedford, Ind. |
| U. S. Crushed Stone Co., | Chicago, Ill. |
| Webster Stone Co., | Irvington, Ky. |

SOME MANUFACTURERS OF LIME SPREADERS ¹

| | |
|--------------------------------|--------------------|
| American Seeding Machines Co., | Springfield, Ohio |
| Crown Manufacturing Co., | Phelps, N. Y. |
| Empire Drill Co., | Shortsville, N. Y. |
| Excelsior Drill Co., | Springfield, Ohio |
| Guarantee Manufacturing Co., | Baltimore, Md. |
| Hurst and Company, | Indianapolis, Ind. |
| International Harvester Co., | Chicago, Ill. |
| Keystone Farm Machinery Co., | York, Pa. |
| Nonpareil Manufacturing Co., | Cochranon, Pa. |
| Peoria Drill and Seeder Co., | Peoria, Ill. |
| Thomas Manufacturing Co., | Springfield, Ohio |

¹ These lists include all Indiana firms known to the Station but are doubtless incomplete

AVAILABLE PURDUE PUBLICATIONS ALONG SOIL FERTILITY LINES

Experiment Station Bulletin No. 155. Results of Cooperative Fertilizer Tests on Clay and Loam Soils

Experiment Station Bulletin No. 157. Unproductive Black Soils

Experiment Station Bulletin No. 170. The Reclamation of an Unproductive Soil of the Kankakee Marsh Region

Experiment Station Bulletin No. 172. Soybeans and Cowpeas

Experiment Station Bulletin No. 187. Acid Phosphate vs. Raw Rock Phosphate as Fertilizer

Experiment Station Bulletin No. 198. Summaries of Soil Fertility Investigations

Experiment Station Bulletin No. 210. The Value of Phosphates on Indiana Soils

Experiment Station Bulletin No. 213. The Value of Lime on Indiana Soils

Experiment Station Circular No. 23. How to Grow More and Better Wheat

Experiment Station Circular No. 25. How to Grow More and Better Corn

Experiment Station Circular No. 36. How to Grow Alfalfa

Experiment Station Circular No. 49. Farm Manures

Experiment Station Circular No. 66. The Lime and Fertilizer Needs of Indiana Soils

Experiment Station Circular No. 76. Increasing Crop Yields for War Needs

Experiment Station Circular No. 79. Indiana Soils Need Phosphates

Department of Extension Bulletin No. 22. Hints on Soil Improvement

Department of Extension Bulletin No. 46. Lime for Acid Soils

Department of Extension Leaflet No. 30. Unproductive Black Soils

Department of Extension Leaflet No. 31. The Value and Management of Clover

Department of Extension Leaflet No. 53. Alfalfa for Indiana

Department of Extension Leaflet No. 55. More and Better Wheat in Indiana

Department of Extension Leaflet No. 62. Sweet Clover

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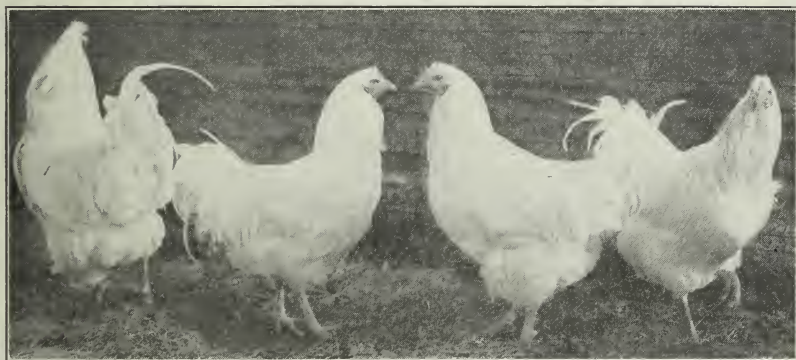


Fig. 1. Ten-pound White Plymouth Rock capons

COST OF RAISING WHITE PLYMOUTH ROCKS

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COST OF RAISING WHITE PLYMOUTH ROCKS

A. G. PHILIPS

SUMMARY

The object of this experiment was to find the various items of cost involved in producing and rearing broilers, roasters, capons and pullets of the White Plymouth Rock variety. The work was carried on with two flocks, one in 1916 and one in 1917, and the data from each were compiled and are discussed separately. The chicks were hatched and reared on the Purdue poultry farm under normal conditions, using a brooder stove colony house and permitting an abundance of range. The regular Purdue rations, involving only those feeds which were quickly available and could be used by any farmer, were fed. The prices of feeds charged were the same as those paid for feeds for all the birds on the Purdue farm, and the method of management was that which could normally be used with any similar flocks in Indiana.

Some of the data given below show two figures on the same question. The first ones are for the year 1916 and the second ones for 1917. The costs during 1917 were higher, due to higher costs of feed.

Based on nine and 10 weeks of life, it took from 4.8 to 5.6 pounds of grain and 6.5 to 8.5 pounds of skim-milk at a total cost of 12 cents to produce a two-pound White Plymouth Rock broiler.

Based on 28 weeks to grow a White Plymouth Rock pullet, it required from 30 to 27 pounds of feed and 22 to 37 pounds of skim-milk at a cost of \$0.58 to \$0.84.

Based on 24 weeks to produce a six and one-half pound roaster, it required 27 to 24 pounds of feed and 22 pounds of skim-milk at a cost of \$0.53 to \$0.75.

Based on 41 weeks to produce a nine and one-half pound capon, it required 64 to 67 pounds of feed and 62 to 79 pounds of skim-milk at a cost of \$1.34 to \$1.88.

White Plymouth Rock cockerels grew more rapidly than pullets.

White Plymouth Rock pullets hatched in March matured in six to seven months and weighed slightly over five and one-half pounds.

Growth gains were very irregular from week to week, with chicks, pullets, cockerels and capons, regardless of feed consumed.

Capons and cockerels grew with similar rapidity and retained similar weights until they weighed six and one-half pounds.

Capons responded to any radical change in ration and made big gains on fattening rations.

The cost of feed to produce one pound of gain was directly proportional to the amount of feed consumed and at practically all times was less than the selling price. The cheapest costs were during the first 10 weeks of life.

Cockerels made gains at less cost per pound for feed than pullets or capons.

The gross cost of rearing a White Plymouth Rock broiler to two pounds was \$0.24 and \$0.29.

The gross cost, including all possible expenses, of rearing a White Plymouth Rock pullet was \$0.79 and \$1.03.

The net cost allowing credit for all income from cockerels, of rearing a White Plymouth Rock pullet was \$0.43 and \$0.70.

The gross cost of rearing a six and one-half pound White Plymouth Rock roaster was \$0.80 and \$1.04.

The gross cost of rearing a nine and one-half pound capon was \$1.66 and \$2.32.

Broilers and roasters were reared at as good a profit and capons at a small profit when all expenses were charged.

It may be as profitable to sell surplus males for broilers as to keep them until they attain roaster size.

White Plymouth Rocks were reared economically and profitably under the market conditions and at the prevailing feed prices of 1917.

INTRODUCTION

Reproduction of the flock is probably the most expensive problem of the poultryman's business. Most farmers have no idea what it costs to produce a broiler, roaster or pullet; neither do they know how much influence the sale of the male may have upon ultimate or net cost of the pullet. Commercial poultrymen used to believe that the sale of the male should pay for rearing the pullet; at the present time it seems as if the male that is marketed becomes merely a by-product in the raising of pullets. Meat production is as essential as egg production, but how far this can be carried on with poultry, profitably and economically, is problematical. What is a fair price to charge for a White Plymouth Rock pullet when selling her in the fall and what did she cost, are questions for consideration. If poultry producers knew how much feed a fowl consumed and how much labor it took to raise her, certain items of management would probably be changed with economical benefit.

In Bulletin No. 196, December, 1916, of this station, figures were given to show the cost of raising Leghorn pullets and in order to follow up this work, a similar investigation for two years with White Plymouth Rocks was conducted. Some data are now available concerning Leghorns but little is known definitely concerning the Plymouth Rocks, especially during the present time of high feed prices. Few people keep records of costs and so do not know the factors that may be minimizing profits in their business.

This experiment was inaugurated to find the cost of raising White Plymouth Rock pullets. This included questions concerning cost of feed, fuel, and labor, mortality, length of time necessary to raise a pullet and possible income from the males when sold at different ages. It involved the cost of production of males sold as broilers, roasters and capons.

TIME

Duplicate experiments were carried on at different times as follows:

Experiment No. 1, March 24, 1916 to January 4, 1917.

Experiment No. 2, March 26, 1917 to January 6, 1918.

HOUSING

The chicks were kept in a shed-roofed portable colony house, 10 feet long by 12 feet deep, heated by a hard coal stove. All the chicks were kept in this house up to 10 weeks of age and the pullets remained in it until the close of the experiment. The males were kept in colony houses of similar construction.



Fig. 2. Young chicks should be started where plenty of shade and green sod is available

YARDING

The brooder was placed in a yard well sodded with blue grass and clover, until the chicks were divided into two groups. The two groups of males and females were then given two lots 150 feet by 150 feet, that were planted to young fruit trees and kept covered with oats or rye pasture. The yarding conditions were ideal, as shade, clean, sweet land and an abundance of green food were available at all times.

STOCK

The chicks were hatched from White Plymouth Rock hens and pullets kept on the Purdue poultry farm. They were selected chicks and possessed all indications of strong vitality. In Experiment No. 1, 200 chicks were used, and in Experiment No. 2, 250 chicks were chosen. With the exception of the numbers, it is not believed that there were any differences in the two flocks.

RATIONS

The rations for both experiments were similar. In Experiment No. 2, it was necessary that the mash be somewhat simplified and the expensive grains reduced in amount.

The ration for Experiment No. 1 (1916) was as follows:

| Grain | Mash |
|-------------------------------------|------------------------|
| 5 pounds sifted cracked corn (fine) | 1.5 pounds bran |
| 5 pounds sifted cracked wheat | 1.5 pounds shorts |
| 5 pounds steel cut oats | 1.5 pounds cornmeal |
| — | 1.5 pounds ground oats |
| 15 pounds total | 1.5 pounds meat scraps |
| | .15 pound charcoal |
| | — |
| | 7.65 pounds total |

Green feed, grit, ground bone, and skim-milk in abundance

The ration for Experiment No. 2, (1917) was as follows:

| Grain | Mash |
|-------------------------------------|------------------------|
| 8 pounds sifted cracked corn (fine) | 2 pounds bran |
| 2 pounds sifted cracked wheat | 2 pounds shorts |
| 2 pounds steel cut oats | 1.2 pounds meat scraps |
| — | — |
| 12 pounds total | 5.2 pounds total |

Green feed, grit, ground bone, and buttermilk in abundance.

As the chicks developed, the corn was fed as coarse cracked corn, whole wheat was substituted for cracked wheat and oats were eliminated from the ration entirely. In Experiment No. 2, whole oats and a prepared scratch feed were fed in late summer and early fall, as they were cheaper than cracked corn or wheat.

PRICES OF FEEDS

The feeds with the exception of wheat and oats were purchased at local feed stores at the regular retail prices. Wheat and oats were bought from farmers at threshing time. Meat scraps were purchased in large quantities direct from a packing house. The milk was bought from the Purdue Dairy Department. The following statement shows prices for the feeds during the two experiments. Every effort was made to buy feeds of good quality at as low a price as possible.

Range of Feed Prices—Minimum to Maximum—Per One Hundred Pounds

| Feed | Experiment No. 1 1916 | Experiment No. 2 1917 |
|-----------------------------|--------------------------|--------------------------|
| Whole wheat ----- | \$1.71 | \$3.36-\$3.48 |
| Cracked corn ----- | 1.50-1.80 | 2.10- 2.35 |
| Corn meal ----- | 1.50- 1.80 | |
| Wheat ----- | 2.00- 2.20 | 2.20- 3.55 |
| Cracked wheat ----- | 2.80 | 4.00 |
| Oats ----- | | 1.50 |
| Steel cut oats ----- | 3.25 | 4.25 |
| Ground oats ----- | 1.75- 1.90 | |
| Bran ----- | 1.25- 1.55 | 1.85- 2.35 |
| Shorts ----- | 1.35- 1.85 | 2.05- 2.85 |
| Meat scraps ----- | 2.60 | 2.60- 3.75 |
| Milk ----- | .30 | .25 |
| Prepared scratch feed ----- | | 3.41 |
| Ground bone ----- | 2.25- 2.90 | 3.10 |
| Coal ----- | 8.60 | 10.00 |
| Straw ----- | 7.00 (per ton) | 7.00 (per ton) |

METHOD OF FEEDING AND CARE

The chicks were placed in the brooders when about 24 hours old. They were not fed until 60 hours of age. The floors of the brooders which were of boards, were covered with one inch of sand and a thin layer of finely chopped straw or alfalfa hay. The temperature was started at 100 degrees and gradually reduced as the chicks grew larger.

The first feed was of mixed grains fed on paper pie plates, five times daily. The amount given was about what the chicks would consume in 20 or 30 minutes. Milk was kept before the chicks from the start, but water was not given them until they were several weeks old.

When three or four days old, the chicks would scratch the grain off the plates, at which time the pans were discarded and the grain scattered in the litter, thus compelling them to scratch for their grain.

At about the seventh day, the mash was given in an open, flat-bottomed trough, covered with one-half inch mesh hardware cloth. At first it was given only twice a day after some grain feeding, and then only what would be eaten in a few minutes. At three weeks of age, the chicks consumed the grain and mash in the proportions mentioned in the preceding paragraph, i. e., about two to one. This kept the needed nutrients in about the proper proportion. The chicks enjoyed the mash and up until they were 10 weeks of age, there was a tendency to over, rather than under eat it. Grit and bone were available at all times. Either sprouted oats or chunks of sod were used as green feed, and while a plentiful supply was used, it was impossible to judge the value. Through an accident, it was found in Experiment No. 1, that the chicks enjoyed and would consume great quantities of the hard coal ashes taken from the brooder. After that, ashes were kept piled in one cor-

ner of the brooder at all times. From all appearances, they supplied the birds with something that the ration lacked.

When the birds were about one pound in weight, the grain was changed to cracked corn and wheat. The grain and the mash were put into a large out-door hopper and made available for the chicks at all

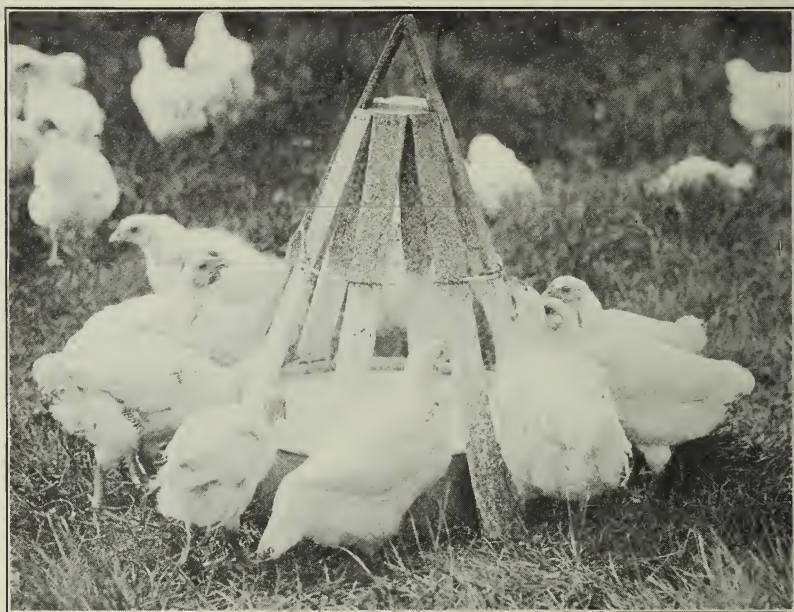


Fig. 3. White Plymouth Rocks—broiler size—drinking milk from an open pan with removable slatted cone top

times and little waste was possible. Over eating did not occur as the birds were not tempted to gorge when they had free access to all they desired. They exercised a great deal and never were eating at the hopper for a continuous length of time.

Every effort was made to give the chicks all feed and care that they needed, but labor was reduced as much as possible. The birds were put on grass as soon as the weather permitted and the houses were cleaned when necessary. Sanitation was observed in the strictest sense.

In Experiment No. 1, the cockerels and culls were removed at nine weeks and in Experiment No. 2 at 10 weeks, and value credited as if they had been sold as live broilers on a wholesale market in Indiana. The best cockerels were saved and about half of them caponized. The pullets were kept in one lot and the cockerels and capons in another.

When the cockerels were 24 weeks old, they were sold alive on the wholesale market. The pullets were considered fully mature at 28 weeks, as one-half or more were laying and were removed from the experiment at that time. The capons were considered full grown at 41 weeks of age and were sold at that time on the wholesale market.

During the summer months the grain rations were changed to meet feed cost conditions. For example, in 1917 when the prices for corn and wheat became so high, a prepared scratch feed was purchased in large quantities; later, oats were used as the only grain. When new corn became available, soft corn on the cob was purchased at a reasonable price and used as grain. During the last three weeks of both experiments, the capons were fed a wet mash to insure a good finish. In November, 1917, the capons were not eating enough of the mash, so it was partly fed wet for two weeks. Practical feeding problems were met as they developed.

WEIGHTS AND RECORDS

A record was made of the feed when it was given to the chicks or put into hoppers for them. All that was weighed into vessels, that was not consumed, was weighed back every two weeks and charged in the next period. These amounts are called "weigh-backs." The periods between weighings were of two weeks duration. Subtracting the "weigh-backs" from the feed charged in, gave the actual consumption of feed per period.

The chicks were weighed at the close of every period and if any were removed as dead or sold, the dates and weights were recorded. Daily records were kept of labor, litter and fuel. When the cockerels and culls were sold, credit was given the pullets for their price, weight and value. It was an easy matter to figure costs of everything except labor, and that was estimated twice daily. The chances are that it was under, rather than over estimated.

TABLE I.—Cost of Chicks at Hatching Time

| | Experiment No. 1 | Experiment No. 2 |
|--|---------------------|---------------------|
| Number of eggs per chick ----- | 2 | 2 |
| Cost of eggs at 2 and 2.5 cents each ----- | \$0.04 | \$0.05 |
| Cost of hatching each ----- | 0.021 | 0.024 |
| Total cost of one chick ----- | 0.061 | 0.074 |
| Total cost of all chicks ----- | \$12.20 | \$18.50 |

In Table I the cost of chicks at hatching time is divided into two parts,—cost of eggs and cost of hatching. The number of eggs to produce a chick is taken from the hatching record of the seasons for White Plymouth Rocks on the Purdue Poultry Farm. The eggs set were valued at two cents each in 1916 and two and one-half cents each in 1917, which were about the average market prices received for eggs sold from the farm in the spring months. In figuring the cost of incubation for 1916 the following plan was used.

Depreciation of 390 egg machine, cost \$40.00 at 6 per cent.

| | |
|---|--------|
| for one-third year..... | \$0.80 |
| Fuel at 4 cents per day—24 days..... | 0.96 |
| Interest on \$40.00 at 6 per cent. for one-third year..... | 0.80 |
| Insurance on \$40.00 machine at \$0.003..... | 0.12 |
| Labor 20 minutes per day, 24 days at 20 cents per hour..... | 1.60 |

Total.....\$4.28

Cost of incubation per egg—\$0.0107

For Experiment No. 2 in 1917, the cost per egg was \$0.012.

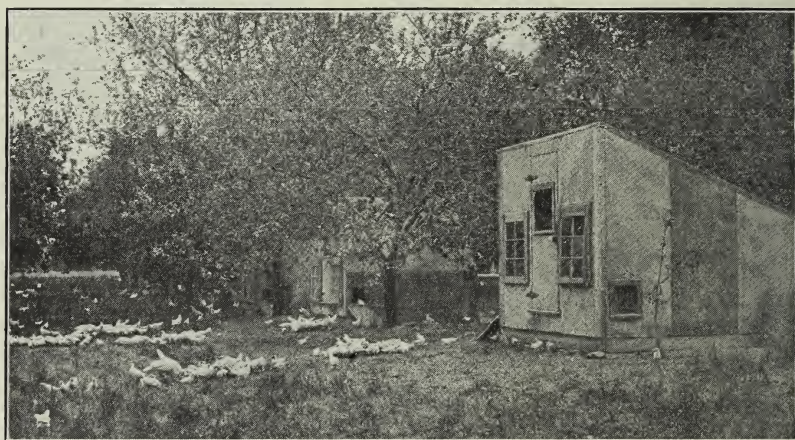


Fig. 4. Grouping of colony houses in orchard, after heat has been removed, saves labor

TABLE II.—Amount and Cost of Feed Consumed per Chick for
Twenty-eight Weeks—Two Years

Chicks

| Weigh- ing period | Average number chicks | | Grain, mash, etc., in pounds | | Milk, in pounds | | Cost of all feed | |
|-------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| | Experi- ment No. 1 1916 | Experi- ment No. 2 1917 | Experi- ment No. 1 1916 | Experi- ment No. 2 1917 | Experi- ment No. 1 1916 | Experi- ment No. 2 1917 | Experi- ment No. 1 1916 | Experi- ment No. 2 1917 |
| 1 | 196.8 | 247.9 | 0.288 | 0.355 | 0.65 | 0.54 | \$.009 | \$.010 |
| 2 | 193.0 | 246.0 | 0.628 | 0.537 | 1.03 | 0.8 | .016 | .016 |
| 3 | 193.0 | 243.3 | 1.093 | 0.877 | 1.85 | 1.18 | .024 | .021 |
| 4 | 191.0 | 238.3 | 1.579 | 1.323 | 2.55 | 2.11 | .034 | .033 |
| 5 | 140.0 ¹ | 236.0 | 2.063 | 1.778 | 2.45 | 1.94 | .043 | .042 |
| Total | | | 5.651 | 4.87 | 8.53 | 6.57 | \$.126 | \$.122 |

Pullets

| | | | | | | | | |
|-------|------|-------|--------|--------|-------|-------|---------|---------|
| 6 | 88.9 | 121.0 | 2.301 | 1.90 | 1.58 | 2.29 | \$.044 | \$.056 |
| 7 | 88.0 | 120.7 | 2.601 | 1.999 | 1.29 | 3.37 | .046 | .062 |
| 8 | 88.0 | 120.0 | 2.174 | 2.019 | 2.46 | 3.98 | .044 | .064 |
| 9 | 88.0 | 120.0 | 2.388 | 2.068 | 1.80 | 4.0 | .046 | .066 |
| 10 | 88.0 | 119.5 | 2.595 | 2.227 | 1.01 | 2.5 | .046 | .073 |
| 11 | 88.0 | 119.0 | 3.371 | 2.779 | 1.59 | 2.99 | .061 | .099 |
| 12 | 88.0 | 119.0 | 2.902 | 3.141 | 2.29 | 2.93 | .054 | .111 |
| 13 | 87.5 | 119.0 | 3.089 | 3.481 | 2.18 | 4.53 | .06 | .108 |
| 14 | 87.0 | 119.0 | 3.089 | 2.641 | 1.82 | 4.0 | .059 | .082 |
| Total | | | 30.111 | 27.125 | 22.55 | 37.16 | \$.586 | \$.843 |

Cockerels and Capons

| | | | | | | | | |
|-------|------|------|--------|--------|-------|-------|---------|---------|
| 6 | 76.5 | 83.8 | 2.355 | 2.016 | 4.07 | 1.59 | \$.052 | \$.058 |
| 7 | 75.8 | 82.0 | 3.217 | 2.439 | 2.07 | 2.29 | .062 | .071 |
| 8 | 75.0 | 82.0 | 2.643 | 2.803 | 2.97 | 1.86 | .054 | .08 |
| 9 | 75.0 | 82.0 | 2.816 | 2.337 | 2.69 | 2.83 | .055 | .069 |
| 10 | 75.0 | 82.0 | 3.456 | 2.44 | 1.71 | 2.03 | .065 | .08 |
| 11 | 74.2 | 82.0 | 3.007 | 3.783 | 0.25 | 2.06 | .052 | .129 |
| 12 | 73.0 | 82.0 | 4.152 | 4.231 | | 2.72 | .07 | .145 |
| Total | | | 27.297 | 24.919 | 22.29 | 21.95 | \$.536 | \$.754 |

Capons

| | | | | | | | | |
|-------|------|-------|--------|--------|-------|-------|---------|----------|
| 13 | 35.0 | 39.0 | 3.52 | 4.02 | 0.56 | 4.17 | \$.066 | \$.128 |
| 14 | 35.0 | 39.0 | 3.42 | 4.95 | 5.3 | 3.21 | .078 | .149 |
| 15 | 33.8 | 39.0 | 3.25 | 4.0 | 3.43 | 4.66 | .067 | .124 |
| 16 | 33.0 | 39.0 | 4.15 | 1.9 | 4.47 | 3.87 | .087 | .041 |
| 17 | 33.0 | 38.85 | 3.95 | 5.41 | 2.76 | 8.29 | .085 | .112 |
| 18 | 33.0 | 35.0 | 3.73 | 5.3 | 3.0 | 6.3 | .08 | .126 |
| 19 | 33.0 | 35.0 | 3.58 | 3.52 | 2.24 | 3.63 | .073 | .102 |
| 20 | 33.0 | 35.0 | 4.85 | 5.48 | 4.71 | 11.06 | .101 | .151 |
| 20½ | 33.0 | 35.0 | 1.38 | 2.98 | 5.36 | 5.9 | .041 | .075 |
| Total | | | 64.778 | 67.349 | 62.65 | 79.61 | \$ 1.34 | \$ 1.884 |

¹ Since in Experiment No. 1, the males were sold at the end of the ninth week the average number of birds is lower in proportion than in Experiment No. 2

In Table II are given the figures that show where the greatest item of cost of rearing exists. The number of chickens involved is sufficiently large to make the data really indicative of what might be expected under commercial conditions. The consumption of feed increased from week to week with the chicks, in regular order, but those in Experiment No. 2—1917—ate less than those in Experiment No. 1—1916. The prices of feed were higher in 1917, but less consumption during the year made the cost per chick practically the same up to the time of marketing the broilers.

The mortality among the pullets was extremely low, showing that they were growing normally. The consumption of feed, though irregular from week to week, had a tendency to increase as the pullets developed. During 1917, the pullets did not consume as much as in 1916, even though there was quite an increase in feed consumption during the twelfth and thirteenth periods. This was due to the feeding of the prepared scratch feed, which was more palatable than cracked corn or wheat. The milk consumption was very irregular, being controlled largely by temperature and the condition of the milk; and was nearly 50 per cent. greater in Experiment No. 2 than in Experiment No. 1. In feed cost per chick, the amount was uniformly higher in 1917 than in 1916. Feeds during July, August and September were very high in price in proportion to other times of the year.

The cockerels and capons were fed together, a fact that may not be exactly fair to either, but which was necessary under existing conditions. There was nothing to indicate that either the cockerels or capons ate more than the other, and it was assumed that they ate similar amounts while together. In both experiments, the feed consumption tended to increase each week, but in Experiment No. 2 it increased decidedly during the last two periods for the reason that the pullets ate more about that time. The feed consumption was greater in 1916 than in 1917; milk consumption was very irregular. The cost of feed was much higher in Experiment No. 2 than in Experiment No. 1, due to prevailing prices, but the total consumption was less.

The capons, after the cockerels were sold, did not vary much from period to period in total feed eaten in Experiment No. 1. In Experiment No. 2, the consumption was more erratic and in period 16 it fell off greatly. No reason can be given for these varying appetites by the birds, because the oats were relished as well as the corn. More pounds of feed were used by the capons in 1917 than in 1916 making the total consumption as well as the cost considerably greater. It cost \$1.34 to feed a capon in 1916 and \$1.88 in 1917.

TABLE III.—Consumption of Different Feeds in Pounds—per Bird

| Feed | Experiment No. 1—1916 | | | | Experiment No. 2—1917 | | | |
|----------------|-----------------------|---------|-----------|--------|-----------------------|---------|-----------|--------|
| | Chicks | Pullets | Cockerels | Capons | Chicks | Pullets | Cockerels | Capons |
| Cracked corn | 1.44 | | | | 2.3 | 4.7 | | |
| Cracked wheat | 0.19 | | | | 0.1 | | | |
| Whole wheat | 1.25 | 8.44 | 7.75 | 10.5 | 0.92 | 3.4 | 2.6 | 2.8 |
| Steel cut oats | 0.19 | | | | 0.1 | | | |
| Ground oats | 0.24 | 1.1 | 1.35 | 0.77 | | | | 1.32 |
| Shorts | 0.24 | 1.5 | 1.46 | 2.38 | 0.49 | 1.6 | 1.8 | 2.74 |
| Bran | 0.24 | 1.5 | 1.46 | 1.61 | 0.49 | 1.6 | 1.8 | 1.42 |
| Corn meal | 0.24 | 1.5 | 1.46 | 3.10 | | | | 3.97 |
| Meat scraps | 0.24 | 0.8 | 1.14 | 0.91 | 0.24 | 1.0 | 1.1 | 0.8 |
| Milk | 7.6 | 17.0 | 15.87 | 31.7 | 6.54 | 30.6 | 15.4 | 50.5 |
| Charcoal | 0.08 | 0.1 | 0.10 | 0.09 | 0.01 | 0.02 | 0.01 | 0.02 |
| Grit | 0.1 | 0.1 | 0.08 | 0.19 | 0.06 | 0.08 | 0.04 | 0.18 |
| Ground bone | 0.08 | 0.1 | 0.06 | 0.19 | 0.05 | 0.2 | 0.1 | 0.22 |
| Corn | | 10.2 | 7.77 | 12.0 | | | 5.2 | 6.45 |
| Prepared feed | | | | | | 7.45 | 7.0 | 2.8 |
| Whole oats | | | | | | 1.89 | | 14.76 |

Table III shows the consumption of the different feeds per bird under four different divisions. Under the heading "chicks," the feed used by each chick up to the time the broilers were removed, is shown. Under the heading "pullets," consumption per pullet is shown during the time they were segregated as pullets. These amounts added to those under "chicks" give total feeds from hatching to maturity. The cockerels should have the number of pounds of feed under the "cockerel" column added to "chicks" to show feed used during their life time. The capons theoretically ate as much as the cockerels plus what is shown under the heading "capons." The figures are given to show difference in consumption of individual feeds by the four groups in the experiments. The two experiments differed greatly because of the different feeds used.

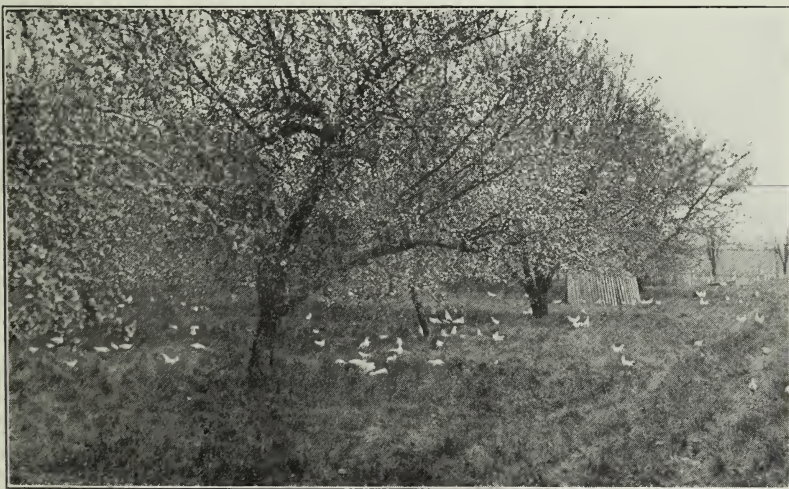


Fig. 5. A sod-bound orchard is an ideal place for rearing chicks, furnishing cheap feed and shade and destroys insects

TABLE IV.—Weights and Gains in Pounds—Pullets

| Period | Experiment No. 1—1916 | | | Experiment No. 2—1917 | | |
|--------|-----------------------|--------|-------|-----------------------|--------------------|--------------------|
| | Weight at beginning | Weight | Gain | Weight at beginning | Weight | Gain |
| Part 1 | 0.085 | | | 0.083 | | |
| 1 | | 0.223 | 0.138 | | 0.204 | 0.121 |
| 2 | | 0.46 | 0.237 | | 0.363 | 0.159 |
| 3 | | 0.97 | 0.51 | | 0.663 | 0.300 |
| 4 | | 1.49 | 0.52 | | 1.075 | 0.412 |
| 4½ | | 1.84 | 0.35 | | 1.719 ¹ | 0.644 ¹ |
| Part 2 | 1.76 | | | 1.57 | | |
| 5 | | 2.03 | 0.27 | | | |
| 6 | | 2.57 | 0.531 | | 1.99 | 0.42 |
| 7 | | 3.07 | 0.50 | | 2.7 | 0.71 |
| 8 | | 3.35 | 0.28 | | 3.285 | 0.585 |
| 9 | | 3.54 | 0.19 | | 3.69 | 0.405 |
| 10 | | 3.72 | 0.18 | | 4.08 | 0.39 |
| 11 | | 4.21 | 0.49 | | 4.689 | 0.609 |
| 12 | | 4.9 | 0.69 | | 5.11 | 0.421 |
| 13 | | 5.21 | 0.31 | | 5.61 | 0.5 |
| 14 | | 5.56 | 0.35 | | 5.73 | 0.12 |

¹ In Experiment No. 2, the last period with the chicks was two weeks long and the fifth period is shown under the one numbered 4½

This table is divided into two parts, the first running from the day the chicks were put into the brooder until the cockerels were removed and the second running from the end of the first period until the pullets were sold. The cockerels were sold at the end of nine weeks in Experiment No. 1, and at the end of 10 weeks in Experiment No. 2.

The gains increased rather regularly in both years in Part 1, but the total weight was not as great at the end of Part 1 in Experiment No. 2 as in Experiment No. 1. This is to be expected when the lessened consumption as given in Table II, is remembered.

At the beginning of the second part, the pullet weights were not as great as the average weights of all chicks at the close of Part 1. This is due to the heavier weights of the cockerels holding up the average. The pullets did not weigh as much to begin with in Experiment No. 2 as in Experiment No. 1, but they weighed slightly more at the close of the twenty-eighth week. The gains were very irregular, there seeming to be no correlation between the amount of feed consumed and the gains made. The apex of gains in 1916 was during the twenty-fourth week and in 1917 was in the twenty-second week, after which time the gains dropped off until in Experiment No. 2, practically no gains were made during the last two weeks. In Experiment No. 1, about half the birds, and in Experiment No. 2, slightly over half were laying at 28 weeks. The pullets started to lay about the twelfth period in 1916, and about the eleventh period in 1917. In other words, the birds matured about two weeks earlier in 1917 than in 1916, but no reason for this is known. The heavy gains in the twelfth and eleventh periods of Experiments No. 1 and 2 respectively, indicated that the birds would soon lay. It proves the supposition that pullets make big gains in weight just before they commence laying.

TABLE V.—Weights and Gains in Pounds—Cockerels

| Period | Experiment No. 1—1916 | | | Experiment No. 2—1917 | | |
|--------|-----------------------|--------|-------|-----------------------|--------------------|--------------------|
| | Weight at beginning | Weight | Gain | Weight at beginning | Weight | Gain |
| Part 1 | 0.085 | | | 0.083 | | |
| 1 | | 0.223 | 0.138 | | 0.204 | 0.121 |
| 2 | | 0.46 | 0.237 | | 0.363 | 0.159 |
| 3 | | 0.97 | 0.51 | | 0.663 | 0.3 |
| 4 | | 1.49 | 0.52 | | 1.075 | 0.412 |
| 4½ | | 1.84 | 0.35 | | 1.719 ¹ | 0.644 ¹ |
| Part 2 | 2.02 | | | 2.05 | | |
| 5 | | 2.34 | 0.32 | | | |
| 6 | | 3.17 | 0.83 | | 2.55 | 0.5 |
| 7 | | 3.87 | 0.7 | | 3.18 | 0.63 |
| 8 | | 4.29 | 0.42 | | 3.82 | 0.64 |
| 9 | | 4.79 | 0.5 | | 4.54 | 0.72 |
| 10 | | 5.45 | 0.66 | | 5.09 | 0.55 |
| 11 | | 5.81 | 0.36 | | 5.74 | 0.65 |
| 12 | | 6.4 | 0.59 | | 6.46 | 0.72 |

¹ In Experiment No. 2, the last period with the chicks was two weeks long and the fifth period is shown in the one numbered 4½

Part 1 of this table is the same as given in Table IV. At the beginning of Part 2, the cockerel weights were greater than the average weights of all chicks at the close of Part 1. The cockerels in Experiment No. 1 weighed about the same at nine weeks as they did at 10 weeks of age in Experiment No. 2, but the weights at the close of the twelfth period, when they were sold, were practically the same. The gains were irregular, and the birds in Experiment No. 2 never equaled those in No. 1 until the twenty-fourth week, at which time the cockerels weighed over a pound more than the pullets.



Fig. 6. The corn field is an ideal place for growing chicks with benefit to both and little damage to the corn

TABLE VI.—Weights and Gains in Pounds—Capon

| Period | Experiment No. 1—1916 | | | Experiment No. 2—1917 | | |
|--------|-----------------------|--------|-------|-----------------------|--------------------|--------------------|
| | Weight at beginning | Weight | Gain | Weight at beginning | Weight | Gain |
| Part 1 | 0.085 | | | 0.083 | | |
| 1 | | 0.223 | 0.138 | | 0.204 | 0.121 |
| 2 | | 0.46 | 0.237 | | 0.363 | 0.159 |
| 3 | | 0.97 | 0.51 | | 0.663 | 0.3 |
| 4 | | 1.49 | 0.52 | | 1.075 | 0.412 |
| 4½ | | 1.84 | 0.35 | | 1.719 ¹ | 0.644 ¹ |
| Part 2 | 2.01 | | | 2.05 | | |
| 5 | | 2.18 | 0.17 | | | |
| 6 | | 2.94 | 0.76 | | 2.21 | 0.16 |
| 7 | | 3.69 | 0.75 | | 2.88 | 0.67 |
| 8 | | 4.13 | 0.44 | | 3.47 | 0.59 |
| 9 | | 4.67 | 0.54 | | 4.14 | 0.67 |
| 10 | | 5.27 | 0.60 | | 5.0 | 0.86 |
| 11 | | 5.69 | 0.42 | | 5.5 | 0.50 |
| 12 | | 6.33 | 0.64 | | 6.32 | 0.82 |
| 13 | | 6.76 | 0.43 | | 6.72 | 0.40 |
| 14 | | 7.28 | 0.52 | | 7.77 | 1.05 |
| 15 | | 7.74 | 0.46 | | 7.77 | 0.0 |
| 16 | | 8.35 | 0.61 | | 7.75 | -0.02 |
| 17 | | 8.56 | 0.21 | | 8.17 | 0.42 |
| 18 | | 8.97 | 0.41 | | 8.5 | 0.33 |
| 19 | | 8.69 | -0.28 | | 7.79 | -0.71 |
| 20 | | 9.5 | 0.81 | | 9.09 | 1.30 |
| 20½ | | 9.91 | 0.41 | | 9.37 | 0.28 |

¹ In Experiment No. 2, the last period with the chicks was two weeks long and the fifth period is shown in the one numbered 4½

Part 1 of this table is the same as given in Table IV. At the beginning of Part 2 the average weights of the cockerels to be caponized were greater than the average weights of all chicks at the close of Part 1. The capons at the start weighed about the same in Experiment No. 1 as in Experiment No. 2, although they were one week younger. They did not recover from the effects of the caponizing immediately but in Experiment No. 1 they resumed their growth in about a week. In Experiment No. 2 it took them two weeks to recover. This put the 1917 chicks practically two weeks behind and it took them until the twelfth period to equal the other lot. While the gains were very irregular from period to period, they continued in 1916 until the nineteenth period, when for some unknown reason there was a loss. This necessitated putting the birds on to a sloppy fattening ration, to which they quickly responded and finished out in nice condition at the end of 41 weeks, weighing practically 10 pounds each.

In Experiment No. 2, the capons made a big increase in weight in the fourteenth, and made no gains in the fifteenth period. The large gain seemed inconsistent and hard to understand, but the lack of gain the next period seemed more erratic. The weights were checked and proved to be correct. The capons had a large range of clover, and corn, wheat and oats for grain. During the sixteenth period, oats were

fed as the only grain and again the birds failed to gain. In the seventeenth period, it was decided that the mash consumption had been too low, and was the cause of the lack of growth, and so each morning a wet mash was fed. This brought the birds back into growth and they gained 0.42 pound each. In the eighteenth period, the wet mash was discontinued but new soft corn on the cob was fed each morning in addition to the oats in the hopper, and the gains continued. In the nineteenth period, the birds would not eat much and a large loss in weight was the result. Beginning with the twentieth period, it was decided that the experiment should soon close, so a fattening mash consisting of two pounds corn meal, one pound ground oats, one pound shorts and eight pounds of buttermilk was fed three times daily. The birds responded well and finished out in good condition, making big gains and weighing within one-half pound as much as the capons in Experiment No. 1. The erratic appetites and gains can not be clearly understood.

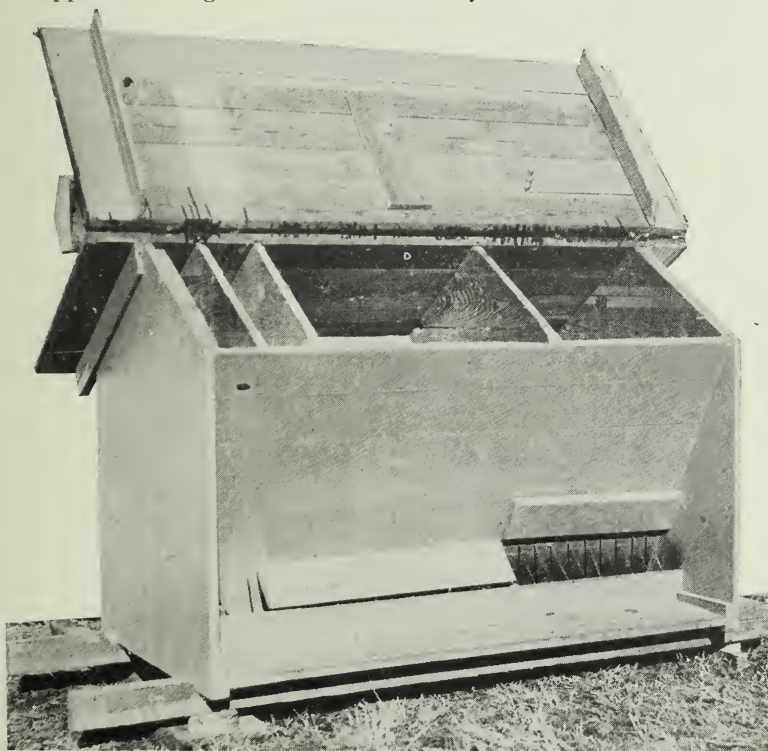


Fig. 7. Range feed hopper, which saves labor in feeding chicks and helps insure growth. Holds a large amount of feed

TABLE VII.—The Gain, Amount and Cost of Feed to Produce One Pound of Gain Per Period (in dollars)

Chicks

| Period | Gain | | Pounds feed per pound gain | | Cost feed per pound gain | |
|--------|-------|-------|----------------------------|------|--------------------------|-------|
| | 1916 | 1917 | 1916 | 1917 | 1916 | 1917 |
| 1 | 0.188 | 0.121 | 2.18 | 2.99 | 0.066 | 0.089 |
| 2 | 0.237 | 0.159 | 2.65 | 3.42 | 0.07 | 0.10 |
| 3 | 0.51 | 0.3 | 2.14 | 3.0 | 0.042 | 0.074 |
| 4 | 0.52 | 0.412 | 3.06 | 3.23 | 0.066 | 0.081 |
| 5 | 0.62 | 0.644 | 3.12 | 2.78 | 0.066 | 0.066 |

TABLE VIIa.—

Pullets

| Period | Gain | | Pounds feed per pound gain | | Cost feed per pound gain | |
|--------|-------|-------|----------------------------|-------|--------------------------|-------|
| | 1916 | 1917 | 1916 | 1917 | 1916 | 1917 |
| 6 | 0.531 | 0.42 | 4.46 | 4.54 | 0.086 | 0.135 |
| 7 | 0.5 | 0.71 | 5.15 | 2.83 | 0.092 | 0.088 |
| 8 | 0.28 | 0.585 | 7.68 | 3.48 | 0.155 | 0.111 |
| 9 | 0.19 | 0.405 | 12.39 | 5.01 | 0.24 | 0.16 |
| 10 | 0.18 | 0.39 | 14.64 | 5.7 | 0.26 | 0.187 |
| 11 | 0.49 | 0.609 | 6.93 | 4.62 | 0.12 | 0.164 |
| 12 | 0.69 | 0.421 | 4.2 | 7.42 | 0.079 | 0.261 |
| 13 | 0.31 | 0.5 | 9.51 | 6.87 | 0.18 | 0.213 |
| 14 | 0.35 | 0.12 | 8.62 | 22.85 | 0.16 | 0.711 |

TABLE VIIb.—

Cockerels and Capons

| Period | Gain | | | | Pounds feed per pound gain | | Cost feed per pound gain | |
|--------|-----------|------|--------|------|----------------------------|------|--------------------------|-------|
| | Cockerels | | Capons | | 1916 | 1917 | 1916 | 1917 |
| | 1916 | 1917 | 1916 | 1917 | | | | |
| 5 | 0.67 | | 0.52 | | | | | |
| 6 | 0.83 | 0.5 | 0.76 | 0.16 | 3.00 | 6.45 | 0.067 | 0.186 |
| 7 | 0.70 | 0.63 | 0.75 | 0.67 | 4.54 | 3.75 | 0.088 | 0.109 |
| 8 | 0.42 | 0.64 | 0.44 | 0.59 | 6.11 | 4.55 | 0.12 | 0.13 |
| 9 | 0.50 | 0.72 | 0.54 | 0.67 | 5.43 | 3.36 | 0.10 | 0.10 |
| 10 | 0.66 | 0.55 | 0.6 | 0.86 | 5.52 | 3.5 | 0.10 | 0.115 |
| 11 | 0.36 | 0.65 | 0.42 | 0.5 | 7.51 | 6.5 | 0.13 | 0.222 |
| 12 | 0.59 | 0.71 | 0.64 | 0.82 | 6.94 | 5.53 | 0.11 | 0.189 |

TABLE VIIc.—

Capons

| Period | Gain | | Pounds feed per pound gain | | Cost feed per pound gain | |
|--------|-------|-------|----------------------------|---------|--------------------------|------|
| | 1916 | 1917 | 1916 | 1917 | 1916 | 1917 |
| 13 | 0.43 | 0.40 | 8.19 | 10.19 | 0.15 | 0.32 |
| 14 | 0.52 | 1.05 | 6.58 | 4.71 | 0.15 | 0.14 |
| 15 | 0.46 | | 8.89 | no gain | 0.18 | |
| 16 | 0.61 | -0.02 | 6.79 | loss | 0.14 | |
| 17 | 0.21 | 0.42 | 19.22 | 12.37 | 0.41 | 0.25 |
| 18 | 0.41 | 0.33 | 8.92 | 15.75 | 0.19 | 0.37 |
| 19 | -0.28 | -0.71 | loss | loss | | |
| 20 | 0.81 | 1.30 | 5.95 | 4.24 | 0.12 | 0.11 |
| 20½ | 0.41 | 0.28 | 3.39 | 10.32 | 0.10 | 0.26 |

The gains shown in Table VII—VIIa, VIIb, and VIIc are taken from Tables IV, V, and VI. The workings of nature are seldom in exact order and so the feed consumed to produce one pound of gain is as irregular as the gains. When gains are low, feed consumption probably remaining about the same, the amount of feed to produce one pound of gain is high. This was not true until after the chicks weighed two pounds. In 1917, during the first 10 weeks the chicks ate and gained less, than in the year 1916. This made the number of pounds of feed and the cost thereof amount to more in Experiment No. 2. There being no uniformity of gain one year with another, it is useless to compare them, but the cost is uniformly greater during the second year. This was largely on account of the increased cost of feed.

The Tables VIIa, VIIb, and VIIc show the figures for the pullets alone; the cockerels and capons together until the cockerels were sold; and the capons alone. The pullets ate more feed to produce one pound of gain as they grew older and the cost increased with the consumption. The cockerels were somewhat erratic in their feed consumption per pound gain, but the cost kept rather uniform in Experiment No. 1 and only raised suddenly in Experiment No. 2, when the grains became so expensive. When no gain was made with the capons, no cost of gain could be figured for that period. It was automatically taken care of in the next period.

TABLE VIII.—Cost of Raising a Pullet—Gross

| | Experiment No. 1 1916 | Experiment No. 2 1917 |
|--|-----------------------------|-----------------------------|
| | First period | |
| | 200 chicks | 250 chicks |
| Cost of baby chicks ----- | \$12.20 | \$18.50 |
| Raising costs ----- | 35.04 | 50.53 |
| Total cost ----- | 47.24 | 69.03 |
| Pounds of chicks ----- | 351.8 | 405.8 |
| Cost per pound ----- | \$ 0.134 | \$ 0.17 |
| Cost per chick ----- | \$ 0.247 | \$ 0.292 |
| | Second period | |
| Pounds of pullets left from first period ----- | 157.02 | 190.32 |
| Cost for first period ----- | \$21.04 | \$32.35 |
| Raising cost, second period ----- | 48.119 | 91.385 |
| Total cost ----- | 69.159 | 123.735 |
| Number pounds at close ----- | 484.5 | 682.7 |
| Total cost per pound ----- | \$ 0.142 | \$ 0.181 |
| Number pullets reared ----- | 87 | 119 |
| Cost per pullet ----- | \$ 0.794 | \$ 1.039 |
| Number pounds gained this period ----- | 327.48 | 492.38 |
| Raising cost per pound this period ----- | \$ 0.146 | \$ 0.185 |
| Weight at 9 weeks, pounds ----- | 1.76 | 1.57 ¹ |
| Weight at 24 weeks, pounds ----- | 5.56 | 5.73 |

¹ Weight at 10 weeks

The gross cost of raising a pullet is one of the main objects of this experiment and in Table VIII the figures are divided into two periods, the first running from the day the chicks were hatched until the culls and males were sold, and the second running from the end of period 1 to the twenty-eighth week. In the first period, all cost items, including cost of cockerels were charged, except the cost of the brooder. The cost is greater in Experiment No. 2 than in No. 1, due to high cost of feed, it being \$0.247 and \$0.292 per chick in 1916 and 1917 respectively.

The number of pounds of pullets left from the first period after culling was charged at the beginning of the second period at the cost price per pound of period 1. All expenses except brooder rental, were charged in this period and added to the first cost. The total of periods 1 and 2, divided by the number of pounds at the close of the experiment, gave a growing cost per pound of \$0.142 and \$0.181 for the years 1916 and 1917. The number of pullets reared out of 200 chicks in 1916 was 87 and out of 250 chicks in 1917 was 119. This is an excellent percentage and helps to reduce the cost per pullet. The gross costs per pullet on the basis of pullets only were \$0.794 and \$1.039 and the weights were 5.56 pounds and 5.73 pounds for the years 1916 and 1917.

TABLE IX.—Raising Costs of Broilers—Gross

| | Experiment No. 1 1916 | Experiment No. 2 1917 |
|------------------------------------|-----------------------------|-----------------------------|
| Number pounds sold ----- | 194.6 | 215.48 |
| Number cockerels ----- | 79 | 86 |
| Number culls ----- | 23 | 29 |
| Raising cost per pound ----- | \$ 0.134 | \$ 0.17 |
| Number pounds cockerels sold ----- | 160 | 176.4 |
| Raising cost—broilers ----- | \$26.076 | \$36.63 |
| Raising cost—cockerels ----- | 21.44 | 29.988 |
| Selling price—gross ----- | 0.32 | 0.35 |

Table IX shows the cost of the broilers sold the ninth and tenth weeks. During both years there were some culls sold with the cockerels. The cockerels and culls are listed separately but the cost is lumped. The gross selling price should be reduced two cents per pound for express and shrinkage, but this still leaves a comfortable margin over the raising cost.

TABLE X.—Raising Costs of Cockerels or Roasters—Gross

| | Experiment No. 1 1916 | Experiment No. 2 1917 |
|---|-----------------------------|-----------------------------|
| Pounds of broilers left from first period ----- | 81.1 | 88.2 |
| Number broilers ----- | 40 | 43 |
| Cost first period ----- | \$10.86 | \$14.99 |
| Number pounds produced second period ----- | 162.3 | 189.9 |
| Raising cost second period ----- | \$19.63 | \$30.00 |
| Raising cost second period per pound ----- | 0.121 | 0.158 |
| Number pounds at close ----- | 243.4 | 278.1 |
| Total cost ----- | \$30.49 | \$44.99 |
| Total cost per pound ----- | 0.125 | 0.161 |
| Selling price—gross ----- | 0.19 | 0.24 |
| Number roasters reared ----- | 38 | 43 |
| Cost per bird ----- | \$ 0.80 | \$ 1.04 |
| Weight per bird—9 weeks—pounds ----- | 2.02 | 2.05 ¹ |
| Weight per bird—24 weeks—pounds ----- | 6.4 | 6.46 |

¹ Experiment No. 2 at 10 weeks

Table X shows the final cost of the roasters reared, considering only the number saved to raise as roasters. In 1916, there were 40 cockerels to start with and two died. In 1917, 43 chicks lived throughout the experiment. The cost per pound was slightly less during this part of the experiment than during the baby chickhood, thus keeping down the total cost per pound. The selling prices of \$0.19 and \$0.24 are gross and should be reduced 1.5 cents to pay for express and shrinkage, leaving a fair margin over the cost. The total cost per roaster was \$0.80 and \$1.064 and the final weights were 6.4 and 6.46 pounds for the years 1916 and 1917.

TABLE XI.—Raising Costs of Capons—Gross

| | Experiment No. 1 1916 | Experiment No. 2 1917 |
|---|-----------------------------|-----------------------------|
| Pounds of capons left from first period ----- | 76.7 | 81.7 |
| Number capons ----- | 38 | 39 |
| Cost first period ----- | \$10.277 | \$13.89 |
| Raising cost second period per pound ----- | 0.121 | 0.158 |
| Number pounds at close second period ----- | 221.7 | 246.7 |
| Number pounds produced second period ----- | 145.0 | 165.0 |
| Raising cost second period ----- | \$17.54 | \$26.07 |
| Total cost first and second periods ----- | 27.817 | 39.96 |
| Number pounds at close second period ----- | 327.3 | 328.0 |
| Number pounds produced third period ----- | 105.6 | 114.2 ¹ |
| Raising cost third period per pound ----- | \$ 0.257 | \$ 0.36 |
| Raising cost third period ----- | 27.153 | 41.634 |
| Total cost first, second, third period ----- | 54.97 | 81.594 |
| Total income for capons ----- | 81.82 | 91.84 |
| Total profit for capons ----- | 26.85 | 10.25 |
| Total cost per pound ----- | 0.168 | 0.248 |
| Weight per bird—9 weeks (pounds) ----- | 2.01 | 2.05 ² |
| Weight per bird—41 weeks (pounds) ----- | 9.918 | 9.37 |
| Total cost per bird ----- | \$ 1.66 | \$ 2.32 |
| Cost of caponizing per bird ----- | 0.04 | 0.04 |
| Selling cost per pound (net) ----- | 0.25 | 0.28 |
| Income per capon ----- | 2.479 | 2.62 |

¹ Four birds stolen were counted out² 10 weeks

Table XI gives the raising costs of the capons to 41 weeks of age. In Experiment No. 1, there were 38 capons to start with and five died. In Experiment No. 2, there were 39 capons to start with and four were stolen. The first period as used in the table, gives the raising costs from hatching time to the time the cockerels were removed as broilers; the second period was the time the cockerels and capons were together; and the third period was the time the capons were alone. The number of pounds of capons after caponizing was multiplied by the raising cost per pound to date, giving cost of capons on day of caponizing. In Experiment No. 2, four capons were stolen and were recorded as being removed from the experiment at the beginning of that period and gains figured accordingly. In the final profit, these birds lost with those that died, helped to reduce the income and consequent profit. The raising cost per pound was much greater in the third period than during the second, as gains were slower. The final weights of the capons were 9.91 and 9.37 pounds each, grown at a cost of \$0.168 and \$0.248 per pound or \$1.66 and \$2.32 per bird. They were sold at \$0.25 and \$0.28 per pound in the two years, realizing \$2.47 and \$2.62 each. The total profit was \$26.85 in Experiment No. 1 and \$10.25 in Experiment No. 2. The capons were not as profitable in 1917 as in 1916, because feed was higher and selling prices did not quite keep up in proportion.

TABLE XII.—Raising Cost of Pullets—Net

| | Experiment No. 1 1916 | Experiment No. 2 1917 |
|--|-----------------------------|-----------------------------|
| Number of chicks to start ----- | 200 | 250 |
| Number of pullets at end ----- | 87 | 119 |
| Number chicks marketed ----- | 102 | 115 |
| Total cost of hatching ----- | \$12.20 | \$18.50 |
| Raising cost first period ----- | 35.04 | 50.53 |
| Raising cost second period ----- | 48.119 | 91.38 |
| Interest and depreciation on brooder ----- | 5.00 | 5.00 |
| Total cost ----- | 100.359 | 165.41 |
| Income chicks sold (net) ----- | 58.38 | 71.108 |
| Income eggs sold ----- | 4.32 | 10.897 |
| Total income ----- | 62.70 | 82.005 |
| Total net cost ----- | 37.659 | 83.405 |
| Cost per pullet reared (net) ----- | 0.432 | 0.70 |
| Cost per pullet (gross) ----- | 1.153 | 1.39 |
| Weight per pullet at end (pounds) ----- | 5.56 | 5.73 |

Table XII gives the final and net cost of rearing a pullet. It is figured on the basis of the actual number of pullets reared, they paying for all expenses and mortality. The cost of hatching is added to the cost to time of caponizing and to the cost after separation, along with interest and depreciation on the brooder. From this is subtracted the income from sale of males and eggs laid, leaving the net costs of \$37.66 and \$83.40 for the two experiments. These divided by the number of pullets reared gives \$0.43 and \$0.70 as the actual net cost of rearing White Plymouth Rock pullets in 1916 and 1917. Neither of these costs

is abnormally high although it is greater in 1917. Sale prices of pullets were higher in 1917 than in 1916 and should take care of the increased cost.

TABLE XIII.—Influence of Time of Selling on Profit

| Week | Experiment No. 1—1916 | | | | Experiment No. 2—1917 | | | |
|------|----------------------------------|----------------|---------|---------|----------------------------------|----------------|---------|---------|
| | Weight cockerels in pounds | Price cents | Income | Profit | Weight cockerels in pounds | Price cents | Income | Profit |
| 9 | 81.1 | \$0.32 | \$25.95 | \$15.09 | | | | |
| 10 | 93.9 | 0.30 | 28.17 | 15.27 | 88.2 | \$0.35 | \$30.87 | \$15.88 |
| 12 | 127.1 | 0.29 | 36.85 | 21.38 | 109.8 | 0.33 | 36.23 | 17.56 |
| 14 | 154.8 | 0.27 | 41.79 | 23.33 | 137.1 | 0.28 | 38.38 | 16.43 |
| 16 | 171.9 | 0.25 | 42.97 | 22.15 | 164.6 | 0.26 | 42.79 | 17.10 |
| 18 | 191.8 | 0.23 | 44.11 | 20.79 | 195.4 | 0.25 | 48.85 | 19.99 |
| 20 | 218.0 | 0.22 | 47.96 | 21.58 | 219.1 | 0.24 | 52.58 | 20.81 |
| 22 | 226.6 | 0.20 | 45.32 | 17.32 | 247.2 | 0.24 | 59.32 | 20.53 |
| 24 | 243.4 | 0.19 | 46.24 | 15.82 | 278.1 | 0.24 | 66.74 | 21.75 |

Table XIII shows the relative prices, incomes and profits to be expected from selling young cockerels at different ages and times of the year. The year 1916 was a rather normal one and prices decreased regularly from May to October. Even with the increase in weights as the males grew older, the price dropped so rapidly that there was nothing to be gained by holding males until fall. The greatest profit in Experiment No. 1 was during the fourteenth week. In 1917, prices were higher and did not drop as they usually do during August and September; the big drop came later than usual after these males were sold. In Experiment No. 2 the most profitable period was at 24 weeks, but the difference between that time and six weeks earlier was negligible. The differences between 10 weeks and 14 weeks were relatively small. Fortunately the mortality was low with the cockerels in these experiments. The longer the birds are kept, the greater the chances of loss and if the margins of profit are not large it may not pay to hold males after they become broiler size. If feed is cheap and sale prices high, it will pay to hold, but not under other conditions.

CONCLUSIONS

None of the data contained in the foregoing discussions are absolute but they are indicative. Any poultryman rearing Plymouth Rocks, Wyandottes, or Rhode Island Reds could take the amount of feed consumed by the birds in this experiment, multiply it by the cost of feeds in his locality, and easily obtain a fair estimate of what it would cost to feed his birds during any period of growth. He could put his cost charges in place of those submitted and quickly figure the cost of hatching a chick. In other words, these figures will aid one in working out his own problems, by furnishing weights and amounts that can be applied to any local condition. With feed prices so variable, erratic and impossible of forecasting, no definite conclusions as to profits to be obtained in raising chickens can be worked out. The two years, 1916 and 1917, had such different feed and sale prices that they must really be considered separately. It is the amounts and weights that are the most indicative and definite.

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Ag. Sec.

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The Indiana Fertilizer Control law was enacted by the state legislature some 37 years ago, this state being one of the pioneers in safeguarding the purchasers as well as the honest manufacturers in the handling and consumption of fertilizer.

Two important changes have since been made in this law; an amendment in 1899, to provide for field inspection, and another amendment in 1901, to eliminate the useless analysis of samples submitted by the manufacturer, with the result, that at present the Indiana Fertilizer law is one of the simplest and most effective protective measures in the statutes of any state.

Many new agents and consumers when interviewed by inspectors of the State Chemist's Department, show that they have failed to familiarize themselves with the requirements of the fertilizer law or the benefits to be derived from its enforcement.

Since the full text of the Indiana Fertilizer law and the working regulations of the State Chemist's Department have been published in recent bulletins, it is deemed unnecessary to reprint them in full at this time. The full text of the law with explanations and rulings will be forwarded without cost upon request. In order that manufacturers, agents, dealers, distributors and consumers may familiarize themselves with the essential provisions and the benefits to be derived from their enforcement, the main points of the law governing the sale of materials for manurial purposes in Indiana are summarized herewith.

MANUFACTURERS

Proper certificates of registration for each brand, accompanied by fees and an order for State Chemist's labels must be submitted before any manurial substance, except barnyard manure, marl, lime, wood ashes and plaster, is offered, exposed for sale, sold or distributed in the State. A change in guarantee can be made only by a distinctive change in the name of the brand, as the registration of a brand is permanent and is not subject to withdrawal or change. *Annual filing of certificates is not required.*

State Chemist's labels must be attached at the time of shipment, to all packages of 200 pounds or fraction, including sample bottles. Subsequent delivery of labels, after making unlabeled shipments, does not meet the requirements of the law and makes the purchaser liable to prosecution. In the case of bulk sales, labels must be furnished with each 200 pounds or fraction. The attached State Chemist's labels fix the legal standard for the shipment and each plant food contained therein should equal or exceed in every particular the guarantee on the State Chemist's label.

¹ Resigned January 31, 1913

Ruling 12 A. Brands registered on forms 1902 must be free from acidulated phosphates and those registered under names indicating the use of animal by-products only, i. e., raw bone, ground bone, steamed bone, tankage, animal bone manure, bone and potash, bone and potash mixture, etc., must be free from acidulated materials, ammonium sulphate, nitrate of soda, rock phosphate, lime, all fillers, and contain animal sources of nitrogen and phosphoric acid only.

There still seem to be a few manufacturers who have not complied with this ruling and in order that further misunderstanding may be avoided, those registering or desiring to register materials for sale under the fertilizer law should note that shipments made under the name of raw bone, steamed bone, ground bone, etc., must consist of animal by-products only, and that the use of nitrate of soda, ammonium sulphate, rock phosphate, acid phosphate, gypsum, lime, salt, any other filler or material which is not an unacidulated animal by-product is prohibited by such ruling, violation of which, will necessarily lead to the cancellation of registrations of any such brands. However, reinforcing agents or fillers may be used if desired when offered for registration under names which do not indicate the presence of animal by-products only.

Persons or firms wishing to register fertilizer for sale in this state will be furnished the full text of the law and the working regulations of the State Chemist's Department upon request.

AGENTS, DEALERS, DISTRIBUTERS

Persons offering, selling or distributing fertilizer in Indiana should secure a copy of the law from the State Chemist and familiarize themselves with its provisions. They should represent companies with good records of inspection and require of the companies a clause in the contract or supplementary agreement guaranteeing them from loss for any penalties which may be assessed, due to the failure on the part of the company represented to meet the requirements of the law.

The Indiana Fertilizer law recognizes only the State Chemist's labels bearing the fac simile signature of the State Chemist (see reproduction, page 6.) Do not accept, offer or expose for sale, sell, deliver, distribute or have in your possession any sample, package or any quantity of any commercial fertilizer which does not have attached to the packages or available for bulk shipments, the State Chemist's label for each 200 pounds or fraction. Labels must be attached to the packages of fertilizer or accompany bulk sales at the time of delivery. The delivery of fertilizer with subsequent delivery of labels on the plea of oversight, hurry, accommodation, etc., cannot be accepted as an excuse for such violations. A prompt report of all such unlabeled sales will be made to the prosecuting attorney. The State Chemist's label is always printed and any alterations thereon constitutes a violation of the law. Therefore, do not accept any sample, package or quantity of fertilizer with State Chemist's labels showing alterations.

When the inspection report of any sample in your possession is accompanied by the advice that shipment be withdrawn from sale on account of deficiencies, it should be removed promptly and the amount and date

of withdrawal reported to the State Chemist. Failure to comply with such advice will necessitate a report to the prosecuting attorney for wilful violation.

Manufacturers and their representatives frequently claim that a deficiency in a certain plant food is compensated in value by the excess in another plant food. Based on this claim, purchase of fertilizer would become merely a contract for so many dollars worth of plant food without regard to kind or quantity. Since each of the plant foods, nitrogen, potash and available phosphoric acid has a certain function, peculiar to itself, to perform in plant production and cannot replace the other, such a claim is illogical. It is essential that the particular plant food desired and purchased be secured, and not an equal money value of another plant food if a profitable and economical use of commercial fertilizer is made.

Comparative values are a means of comparing similar brands but should be used only for such purposes, and care should be taken to consider the method by which the values are derived. In many cases, through the use of untreated rock phosphate as a makeweight, it will be found that while on the basis of total valuation one brand may show much higher than another, when compared on the basis of the value of the nitrogen, potash and *available phosphoric acid* present, the excess value of one may be due to a large excess of insoluble phosphoric acid.

Local agents are directly responsible for the fertilizer they offer for sale and should be careful to keep the fertilizer in a clean and water-proof building. Different brands should be kept in separate piles to prevent mixing if the bags are damaged. If labels become detached, secure an additional supply. When resacking, take every precaution to prevent mixing of brands or the addition of foreign material. Attach State Chemist's labels as required by law. Do not guess at the composition of brands that have become mixed, but write the facts to the State Chemist before offering it for sale. A reduction in price will not excuse deficiencies or failure to attach labels.

If shortweight shipments are suspected, notify the State Chemist at once and do not accept them until an investigation has been made by an official inspector.

The satisfying of plant food needs according to the special soil and crop requirements, together with proper cultivation and the application of other principles of good farming and not the application of so many dollars worth of fertilizer without regard to kind or quality, are the essentials of maximum crop production.

CONSUMERS


Through observation, experiment, and consultation with the Soils and Crops Department of the Experiment Station, determine the plant food required by your soil to produce profitable results and purchase on the basis of the price of the ingredient or ingredients desired and not on the filler used or the price per ton. High grade fertilizers, while more costly per ton, almost without exception furnish plant food at a less cost per pound and from more valuable sources than lower grade and cheaper per ton fertilizers.

Do not accept fertilizer without State Chemist's labels attached to packages or accompanying bulk sales. (see reproduction, page 6). The printed guarantees should agree with those on sample bottles or in contract at the time of purchase. The law requires that the person or persons selling the fertilizer furnish the amounts of plant food guaranteed on the State Chemist's labels accompanying the shipment; hence it is essential if you purchase fertilizer guaranteed on the State Chemist's label to contain 1.6 per cent. nitrogen, 2.0 per cent. potash soluble in water and 8.0 per cent. available phosphoric acid that the official labels contain this guarantee and no other.

Do not purchase resacked fertilizer at a bargain or under any circumstances, unless certain that it has been stored in such a manner as to prevent deterioration and bears official labels showing composition desired. The furnishing of proper plant food in amounts needed by the soil and crop, together with proper methods of cultivation and cropping, and not bargain sales, are the things needed to produce profitable results on deficient or unproductive soils.

Cooperate with this department by purchasing from companies whose records of inspection show they are maintaining their guarantees and by notifying at once the prosecuting attorney of your district when reports are received showing that fertilizer purchased does not meet the requirements of the law.

THE STATE CHEMIST'S LABEL
ACCEPT NO OTHER



No. 6010

JOHN DOE & COMPANY,
of Columbus, Ohio,

Guarantee this

SNOWFLAKE FERTILIZER

to contain not less than

2.4 per cent. of total nitrogen, (N),

10.0 per cent. of potash, (K_2O), soluble in water,

8.0 per cent. of soluble and reverted phosphoric acid, (P_2O_5), and

1.0 per cent. of insoluble phosphoric acid, (P_2O_5).

Purdue University
Agricultural
Experiment Station,
LaFayette, Indiana.

E. E. Prouty
Acting State Chemist

Inspectors annually report many agents and consumers who seem to be unacquainted with the State Chemist's label and its functions, hence the reproduction on page 6. It fixes the legal guarantee for the fertilizer to which it is attached or which it accompanies, and is the only label recognized under the Indiana Fertilizer law.

It is the guarantee of the manufacturer and not of the State Chemist as to the analysis of the fertilizer. It is the duty of the State Chemist to see that the manufacturer lives up to his guarantee. The law thus protects both the consumer and the honest manufacturer and furnishes a foundation for the accurate and intelligent use of fertilizer to increase crop production.

HOW TO USE ANNUAL REPORTS

Purchasers, agents and dealers will derive the greatest value from the annual fertilizer bulletins by following the suggestions offered:

Determine the formula you wish to purchase.

Consult Table VIII to ascertain the manufacturers having fertilizers of the desired composition registered for sale.

Consult Tables II, III and IV to ascertain the inspection records of manufacturers selected from Table VIII.

If details of the inspection of any particular brands are desired, consult Table VI and for additional information write to the State Chemist.

Purchase of manufacturers whose records of inspection are such as to justify the belief that they will deliver fertilizer as guaranteed.

The index to each report is so arranged as to enable the preceding suggestions to be followed with a minimum expenditure of time and labor.

ADMINISTRATION

The administration of the Indiana Fertilizer law is in charge of the State Chemist, who is assisted in carrying out the provisions of the law by a staff of deputies and inspectors. The latter are on the road each working day, collecting samples of fertilizers and feeding stuffs which are forwarded to the laboratory where they are analyzed by the deputies.

The revenue from the sale of State Chemist's labels is used to carry on the work of inspection. All fees should be made payable to the State Chemist. The accounts of the Department, including all receipts and expenditures, are audited at intervals by the State Board of Accountants.

The large number of shipments into the State makes it impossible to obtain a sample from each shipment, nor is this necessary to secure adequate inspection and protection. The inspectors are instructed to secure two samples of each brand in the spring and fall in different parts of the State, and in the case of brands having large sales and companies with poor records of inspection, the number is increased so as to give additional assurance that the results of the inspection are representative of the fertilizer sold in the State each year. The inspection of 1917 shows that one sample was secured for each 141 tons and one sample analyzed for each 142 tons sold in the State. Requests for special inspection are almost invariably complied with.

The only samples analyzed are those taken by our regular inspectors from goods properly labeled on the open market. Do not forward samples

for analysis, but write to the State Chemist stating the manufacturer, brand, official number (which is always at the top of the official label), amount of fertilizer on hand and any special reason for desiring the inspection. If the amount on hand is sufficient to give a representative sample and a number of samples of the same brand or brands has not already been secured, an inspector will be sent to take an official sample without expense to the person desiring the inspection.

The rule that only samples secured by inspectors of the Department will be analyzed, must be rigidly adhered to for the following reasons: 1—the analysis of a sample of fertilizer is of value only when drawn in such a manner as to be representative of the entire shipment. Such a representative sample can only be taken by persons with special training, using a sampling tube which takes a full core of the entire length of each package sampled; 2—representative samples are the only ones whose legality can be sustained in the courts; 3—the only funds available for the work of inspection are those received from the sale of labels; therefore the number of samples which can be analyzed is limited by the revenue and the staff available.

All samples received from the inspectors are analyzed and the results reported and published unless error in connection with the taking of same by an employee of the Department can be shown. The inspection samples are analyzed in the order in which they are received at the laboratory and by what is known as the blind system: i. e., the analyst is not in possession of the name of the manufacturer or brand which he is analyzing, but works solely by the laboratory number assigned to the sample upon its arrival. In case of samples found below guarantee, before report is made, at least two analysts make independent determinations on different portions of the sample and in case of disagreement, these results are checked by a third analyst on another portion of the sample.

The results of the inspection of all samples are reported to the manufacturer, agent and persons from whom samples are obtained. In the case of deficient samples, the manufacturer is given 10 days in which to file objections and review the work, for which purpose a portion of the official sample is furnished if requested, after which a duplicate report with comments pertinent to the inspection is forwarded to the agent and persons from whom the sample was secured.

Unless some exceptional reason exists, requests that inspections be reported within a certain time limit cannot be granted. Under the most favorable conditions, we cannot report more than 150 samples of fertilizer per month, and the only regulation fair to all concerned is to analyze the samples in the order of their arrival. Therefore, consumers should purchase not on the basis of a certain time limit but with the proviso that if inspected and found deficient, the manufacturer will refund on the basis of the State Chemist's analysis. The manufacturer's interests are fully protected through the advance notice of 10 days which is sent him.

Attention is requested to the fact that the prosecutor of the district in which the violation occurs and not the State Chemist is charged with the enforcement of the penalties for violation of the law and any citizen of the State may call violations to his attention. Since reports of the results of inspection are made to all parties to the transaction, it is expected

that purchasers of fertilizer will assist in protecting their own interests by reporting violations. A copy of this bulletin is sent to each prosecutor and a certified copy of the analysis of any inspection sample will be promptly forwarded to any prosecutor on request.

The official duties of the State Chemist are restricted to the inspection of fertilizers and feeding stuffs and the settlement of disputes between coal oil dealers and inspectors. The official work required takes the entire time of the staff of the Department and no miscellaneous work, either gratis or for pay, can be undertaken. Analyses of fertilizers and feeding stuffs must be restricted to samples secured by the regular inspectors. Analyses of water, soils, rocks or similar materials are not made by the Department.

SAMPLING INSTRUCTIONS FOR INSPECTORS

All samples received from the inspectors are analyzed and the results reported and published, unless error in connection with the taking of same by an employee of the Department can be shown.

Notice of such error or negligence on the part of an inspector came to the attention of the State Chemist during the past year. Investigation showed that this inspector failed to secure all his samples according to the official instructions of the State Chemist, and his connection with the Department was severed immediately; none of the samples collected by him during the year are given official record and standing.

Sampling.—The sampler should be inserted into the package with slot closed and down. When it extends the full length of the package, open slot, turn over, fill, close slot and withdraw.

Samples from Packages.—Full cores are to be taken from 20 packages if that number is present. If 20 packages are not available, full cores are to be taken from each package and sufficient additional cores from packages present until the amount necessary to furnish a sample of the size of 20 full cores is secured. *The whole sample so taken is to be shipped to the State Chemist.*

Samples from Bulk.—Full cores must be taken from not less than 20 separate places in the pile and the entire amount secured should be shipped to the State Chemist.

Special care should be taken to get a sample that fairly represents the lot inspected and extra precaution should be taken in the case of mixed fertilizers and those containing potash, to take full cores from each package.

Final Sample.—Place inspector's blank in sack, tie securely, seal, mark official number of sample on top of sack and ship collected samples every two or three days to the State Chemist. Mark the boxes plainly, put the name of the town from which the shipment was made on the box, address to the State Chemist, shipping charges collect, and if possible secure the express company's receipt for shipment. Forward receipt with the daily report.

Agents and consumers are requested to witness in person the drawing of samples and to sign the inspector's slip. Information showing failure on the part of any inspector to observe these instructions will be gratefully received and thoroughly investigated.

GENERAL TERMS

Plant Food.—"A plant food may be defined as a substance which supplies any constituent necessary for the nourishment of plants and in a form suited to promote their development, or capable of being changed by natural processes into such a form."¹ In connection with commercial fertilizers, this term is used to designate the plant food ingredients, nitrogen, potash and phosphoric acid which are the three essential plant foods usually deficient in soils and which commercial fertilizers are designed to supply.

Available plant food.—An available plant food is one that is in such form or combination as to be immediately utilizable in the growth of the plant or in such condition as to become promptly utilizable through natural processes.

Unavailable plant food.—An unavailable plant food is one in such form or combination as not to be capable of utilization by the plant in its growth or which becomes utilizable too slowly to be of appreciable value in crop production.

Direct fertilizer.—A direct fertilizer is one which supplies an essential plant food in condition to be utilized in the growth of the plant or to become available for this purpose through natural processes.

Indirect fertilizer.—An indirect fertilizer does not furnish a plant food but influences the growth of plants by beneficial effects on the soil, such as improving mechanical conditions, promoting aeration, rendering plant food already in the soil more available, correcting acidity and similar conditions.

Commercial fertilizer.—A commercial fertilizer is a material or mixture of materials containing one or more of the plant foods, nitrogen, potash and phosphoric acid, which through manufacturing or mixing processes have been rendered suitable to aid in the growth and development of plants. Under the Indiana Fertilizer law, "A commercial fertilizer is any and every substance imported, manufactured, prepared and sold for fertilizing or manurial purposes, except barnyard manure, marl, lime, wood ashes and plaster."

Complete fertilizer.—A complete fertilizer is one which supplies all three of the plant foods, nitrogen, potash and phosphoric acid, which are essential to crop production and most commonly deficient in cultivated soils.

Incomplete fertilizer.—An incomplete fertilizer is one which supplies only one or two of the plant foods, nitrogen, potash and phosphoric acid.

High grade and low grade fertilizers.—The term high grade fertilizer is used to designate fertilizers which have plant food present in large quantities, as compared to low grade fertilizers which have a small amount of plant food present. The terms are also used to designate the availability of plant food in fertilizers. If the plant food is in available form they are termed high grade and if in unavailable or slowly available form they are termed low grade.

It is extremely difficult to fix a satisfactory line of demarcation between high, medium and low grade fertilizer since a high grade fertilizer

¹ "Fertilizers and Crops"

for one crop or section is not necessarily a high grade for some other crop or section. In general, the division is made on the basis of the total content of plant food or on the retail price. The majority of authorities consider a high grade as one having a sum total of ammonia, potash and phosphoric acid not less than 14 per cent.; a medium grade as one having a sum total not less than 12 per cent., and a low grade as one having a sum total less than 12 per cent.

Wet mixed fertilizer.—Wet mixing as originally practiced, consisted of mixing all the materials used in the fertilizer, including potash salts, and adding sulphuric acid to the entire mixture. At present, two methods are in use; in one, the rock phosphate is thoroughly mixed with sulphuric acid and the organic materials containing nitrogen added to the mixture; in the other, rock phosphate and materials containing nitrogen are first thoroughly mixed and the sulphuric acid added to the mixture. By the wet process, the unavailable nitrogen as well as other plant food in many materials is rendered more available.

Dry mixed fertilizer.—In this process, two methods of procedure are followed, the first of which combines to some extent wet and dry mixing. In the first, rock phosphate is thoroughly mixed with sulphuric acid and partially seasoned, but while still hot and before all free acid has disappeared the nitrogenous materials are added, and in the second, the rock phosphate is treated with sulphuric acid and thoroughly seasoned, after which the proper amount is mixed with the nitrogen and potash containing materials to give the desired formula.

While agents use the method of mixing as a selling point, if the basic materials are in proper condition, there is no reason why satisfactory mixture should not be obtained by either the dry or wet mix method. The available plant food is just as valuable for plant production from one process as from the other, although in the latter dry mix method, the original material must contain the plant food in available form.

Fillers and driers.—Any material, which does not contain appreciable quantities of nitrogen, potash or phosphoric acid, added to high grade fertilizer primarily to reduce the percentage of fertilizing ingredients, and secondarily to improve its mechanical condition, is called a filler. Materials containing appreciable amounts of any or all of the plant foods can not properly be called a filler. Driers may be either fillers or low grade fertilizer materials.

Low grade fertilizer materials.—The term, low grade fertilizer materials, is used to designate two distinct conditions in the fertilizer trade: in the first case, to define a material in which the amount of plant food present is much less than that contained in other materials known as high grade, and in the second case, to indicate that the plant food is of low availability.

Many manufacturers, in order to overcome the necessity of using fillers, use low grade materials to reduce high grade materials to a lower percentage of plant food. These low grade materials serve not only as make-weights or diluting agents and driers, but also as sources of plant food. Hence to use the word *filler* in connection with dried peat, muck, rock phosphate, dried manure, tobacco stems and similar materials is incorrect.

Per cent.—This term is used to indicate the number of pounds of ingredients in each 100 pounds of fertilizer. For example, a fertilizer guaranteed to contain 2.0 per cent. of nitrogen, 2.0 per cent. of water soluble potash and 8.0 per cent. of soluble and reverted (available) phosphoric acid, is guaranteed to contain two pounds of nitrogen, two pounds of water soluble potash and eight pounds of available phosphoric acid in each 100 pounds.

Formula.—This term is used to express the composition of a fertilizer. For example, if we say the formula of a certain brand is 1.6-2-8, it means in Indiana that the minimum guarantee for the fertilizer is 1.6 per cent. of nitrogen, 2.0 per cent. of water soluble potash, and 8.0 per cent. of available phosphoric acid. In the general trade, the nitrogen is usually expressed in terms of ammonia and is followed by the percentage of phosphoric acid and potash respectively. Thus, in the advertising matter of fertilizer manufacturers, the above formula becomes 2-8-2, i. e., 2.0 per cent. of ammonia, 8.0 per cent. of available phosphoric acid and 2.0 per cent. of water soluble potash.

While at the present time some 81 elements are known to exist, only 14 (calcium, carbon, chlorine, hydrogen, iron, magnesium, manganese, nitrogen, oxygen, phosphorus, potassium, silicon, sodium and sulphur) seem to be generally present in plants, and of these 14, only 10 are probably essential to their growth and maintenance. Of the 10 which are essential in normal plant production, only four, nitrogen, potassium, phosphorus and calcium are liable to be deficient in the soil to such an extent as to impair its productiveness and only three, nitrogen, potassium and phosphorus, (the latter two generally designated in fertilizers as compounds under the name of potash and phosphoric acid) are considered in the manufacture and use of commercial fertilizers.

CHEMICAL TERMS

Nitrogen is a gas and therefore cannot be utilized directly in the manufacture of commercial fertilizers. It is always present in combination with other elements usually as nitrates, ammonia salts or organic nitrogen. The nitrogen in the inspection samples has been separated into different groups and appears in Table VI, under the following headings:

Nitrates and ammonia salts is that portion of the water soluble nitrogen in the fertilizer derived from nitrates and ammonia salts such as: nitrate of soda, ammonium sulphate, etc. Nitrogen in these forms possesses a high grade of availability and can be readily utilized by the plant in its growth.

Water soluble organic nitrogen is that portion of the water soluble nitrogen in the fertilizer derived from organic materials, and although it is probably not as readily available for the use of plants as nitrates and ammonia salts, it possesses a high degree of availability.

Active water insoluble organic nitrogen is that portion of the organic nitrogen insoluble in water but rendered soluble or liberated by the alkaline potassium permanganate solution used in the C. H. Jones method. The determination is a measure of the quality and not the quantity of the water insoluble organic nitrogen. High grade organic materials such as

dried blood, tankage, etc., will show a relatively higher percentage in the "active water insoluble organic" column than in the "inactive insoluble organic" column. Those deriving their nitrogen from low grade organic materials such as peat, garbo tankage, leather, etc., will have the larger percentage in the "inactive organic insoluble" column.

Inactive water insoluble organic nitrogen is that part of the organic nitrogen insoluble in water and not affected by the alkaline potassium permanganate solution and when compared with the active water insoluble organic nitrogen is of value in ascertaining the quality of the water insoluble organic nitrogen.

Total water soluble and active nitrogen is the nitrogen present in the fertilizer and may be considered as in such form as to be readily used by the ordinary crops during the growing season. In other words, it is all the nitrogen in the fertilizer except the inactive water insoluble organic. As explained in a previous report, the total water soluble and active column is not of general use but has been adopted by the State Chemist's Department in the hope that it may offer a simple method of comparing the amounts of utilizable nitrogen present in various brands inspected.

Total nitrogen is the entire amount of nitrogen contained in a fertilizer and is the guarantee required by law.

The data at present available on fertilizers sold in Indiana do not justify general deductions on the nitrogen determinations, but the detailed results are published in Table VI and can be advantageously used by fertilizer purchasers. The principal sources of the nitrogen used in the commercial fertilizer sold in Indiana are: packing house by-products (dried blood, tankage, bone), nitrate of soda, cyanamid, ground tobacco stems, garbo tankage, and ammonium sulphate.

Potash, K_2O , containing the plant food potassium, is a compound of potassium and oxygen in the proportion by weight of 78 parts of the former to 16 parts of the latter and as used in this bulletin, means the total amount of the compound present which is soluble in boiling distilled water. Neither potassium nor potassium oxide can be used directly in manufacturing fertilizers and hence like nitrogen, this plant food is always present in combination with other elements.

Consumers should carefully save wood ashes, cob ashes, straws, tobacco waste, garbage, corn stalks and other carriers of potash in order to conserve this valuable element to the fullest extent.

Phosphoric acid, P_2O_5 , is the compound recognized by the law and in general by the fertilizer trade as containing the plant food phosphorus, and is composed by weight of 62 parts of the former to 80 parts of the latter. This compound known in the trade as phosphoric acid, occurs in most fertilizers in combination with lime but in some cases is combined with iron and alumina.

Available phosphoric acid is the amount of phosphoric acid present in the fertilizer readily available for the use of the plant and consists of two forms: soluble, which dissolves in cold water and reverted, which while insoluble in cold water, is soluble in the soil solvents and is determined by digesting two grams of the fertilizer, from which the water soluble phosphoric acid has been removed, with 100 cubic centimeters of neutral ammonium citrate solution, specific gravity 1.09, for 30 minutes

at 65 degrees C. The soluble phosphoric acid is combined with lime to form mono-calcium phosphate, $\text{CaH}_4(\text{PO}_4)_2$ and the reverted is in combination with lime as di-calcium phosphate $(\text{Ca}_2\text{H}_2)(\text{PO}_4)_2$.

The principal sources of available phosphoric acid in the fertilizers sold in Indiana are: acidulated rock phosphate (acid phosphate); packing house by-products, acidulated and non-acidulated; spent bone black from sugar refineries and other manufactories; precipitated bone from glue factories, and basic slag which is sold in limited quantities.

Insoluble phosphoric acid is the amount of phosphoric acid in the fertilizer not soluble in water or ammonium citrate solution. This form of phosphoric acid, which exists in combination with lime to form tri-calcium phosphate $\text{Ca}_3(\text{PO}_4)_2$, is not readily available for the use of plants in their growth. The phosphoric acid in the unacidulated rock phosphates utilized for fertilizers and also the insoluble in acidulated rock phosphates used in this state, is tri-calcium phosphate. Distinction should be made, however, in the case of insoluble phosphoric acid from rock phosphate and from animal products, such as bone, tankage and other slaughter house waste, since the latter decays rapidly and becomes available much more quickly than the former.

Total phosphoric acid is the sum of the soluble, reverted and insoluble, i. e., all the phosphoric acid in the fertilizer.

GUARANTEES

By the term *guarantee* is meant the minimum amount of plant food which the person or firm responsible for the sale of the fertilizer, certifies it to contain.

While under the Indiana law, the guarantee must be made in terms of nitrogen (N), potash (K_2O) and phosphoric acid (P_2O_5), other states have different requirements and in many the guarantee for the nitrogenous ingredient is required in terms of ammonia (NH_3), a compound of nitrogen and hydrogen in the proportion of 14 parts by weight of the former to three parts by weight of the latter. To convert ammonia into nitrogen, multiply the percentage of the former by 0.822, and to convert nitrogen into ammonia, multiply the per cent. of nitrogen by 1.22.

In the case of potash, the requirements in some states call for the guarantee to be made in terms of the plant food element, potassium. To convert potassium into percentage of potash (K_2O), multiply the percentage of the former by 1.21 and to express potash (K_2O) in terms of potassium, multiply the percentage of potash by 0.83.

In a similar manner, some states require that the percentage of phosphorus and not phosphoric acid be guaranteed. To express percentage of phosphorus in terms of phosphoric acid, multiply the percentage of the former by 2.29, and to convert phosphoric acid into phosphorus, multiply the per cent. of phosphoric acid by 0.436.

Calculation of formulas.—While to many the calculation of fertilizer formulas is mysterious, in reality, it is a very simple matter and resolves itself into ascertaining the number of pounds of plant food desired in a ton or any given quantity of fertilizer by multiplying the amount to be prepared by the percentage of plant food desired in the finished product

and dividing this result by the guaranteed percentage of the plant food in the raw material from which it is to be obtained. For example, if we wish to manufacture one ton of 1.6-2-8 fertilizer from dried blood containing 14 per cent. of nitrogen, western potash containing 22 per cent. of water soluble potash and acid phosphate containing 14 per cent. of available phosphoric acid, we proceed as follows:

2000 pounds (in ton) \times 0.016 = 32 pounds nitrogen

32 pounds \div 0.14 = 228.5 number of pounds of dried blood required ;

2000 pounds (in ton) \times 0.02 = 40 pounds of potash

40 pounds \div 0.22 = 181.9 number of pounds of western potash required ;

2000 pounds (in ton) \times 0.08 = 160 pounds of available phosphoric acid

160 pounds \div 0.14 = 1142.9 number of pounds of acid phosphate required ;

Filler or dryer required to make up to ton, pounds required 446.7.

Total, 2000 pounds.

If the use of filler is not desired, the more concentrated material can be used in smaller amount per acre.

If 200 pounds per acre of 1.6-2-8 fertilizer are required, the equivalent amount of the mixture without filler to be used, can be ascertained by the following simple proportion.

2000 pounds : 1553.3 pounds \therefore 200 pounds : X = 155.3, number of pounds concentrated mixture required per acre.

ACTION OF PLANT FOODS

In considering the part played by the plant foods, nitrogen, potash and phosphoric acid in the growth of the plant, it must be kept in mind that the effect of any element is largely dependent on the other elements necessary to plant growth being present in normal amounts, that all the elements working together are essential to maximum crop production and that even when these are present the results obtained by their use are often very materially affected by cultural and climatic conditions.

It is generally conceded, however, that :

Nitrogen exerts its greatest influence on the amount of foliage, the flowering process, maturing, color, growth, quality and disease resisting power of the plant.

If sufficient available nitrogen is not present, there will be a lack of foliage, stalks or stems will be short, leaves or blades small, color yellowish, weight of foliage, straw and grain or fruit less than when the required amount of nitrogen is available.

If excessive amounts of available nitrogen are used, the growth of foliage will be out of proportion to the grain or fruit, the growth, development, and maturity of the crop retarded, a tendency to softness of the tissues and apparently less power to resist attacks of fungous diseases.

Potash is apparently essential to the formation and transference of starch and other carbohydrates, has an important part in the development of leaves and woody parts of stems, stiffens the stem, stalk and straw, assists in the development of the fleshy parts of fruits and makes the plants more resistant to the attacks of fungous diseases.

Lack of potash results in weak plants, while excessive amounts delay the maturing of the crop.

Phosphoric acid in available form favors rapid development of the young plant, hastens maturity, increases the proportion of grain to straw, assists in developing the grain and is necessary to the development of protoplasm without which there could be no plant growth.

SPECIAL INVESTIGATION

INJURY TO CORN CAUSED BY BORAX IN FERTILIZER

On June 4, 1917, the attention of the State Chemist's Department was called to a field of corn near Francesville where a Double-Five Fertilizer (5 per cent. potash and 5 per cent. available phosphoric acid) had apparently injured corn. An immediate investigation of this field and others in the vicinity was made and the following conditions found:

That some of the corn had come up white and later, part of it acquired a green color.

That some of the corn had come up green, turned white and later, part of it regained its color.

That some of the hills were all green, some were all white, and some had both white plants and green plants.

Borax was suspected as being the injurious material and a sample of an unused portion of the fertilizer, that had apparently caused this condition, was taken and an analysis showed this sample of Double-Five Fertilizer to contain 1.63 per cent. borax. Other samples of Double-Five which contained much less borax produced no apparent injury.

The survey of these fields on the following week showed improvement in color but the plants were not making a normal growth.

Some fields were disked and replanted because of the poor stand, but replants in the same row were not affected.

The type of soil on which the plants were most seriously injured was a loose sandy loam, the heavier, more solid types of soil showing the least injury.

Much of this Double-Five brand did no injury. The fertilizer from some cars worked greater damage than that from other cars, yet from the same car, some fertilizer caused injury and some did not.

This fertilizer was all drilled in the row; amounts varying from 50 pounds to 150 pounds per acre. Where injury was done, the heavier the application, the greater the injury. Some injury resulted from use of fertilizer containing only 3.0 per cent. potash.

The borax which was present in the potash purchased by the manufacturer and which was analyzed by him only for its potash content, injured the plants in the following manner:

By the bleaching effect and by the prevention of chlorophyl formation in the blades.

By destroying tissue of the shoot or root in whole or in part.

By seriously impairing the stand of the corn.

By reducing the vigor of the corn so that insects worked greater injury.

By checking the growth, thus shortening its growing season.

On June 13, 1917 the Chief Inspector of the State Chemist's Department made a trip to Cincinnati to present these conditions to the company and to request that they send their representative to Francesville to procure information direct, of the extent and amount of injury resulting from the use of their Double-Five Fertilizer.

After a thorough discussion of the conditions and the responsibility of the company, assurance was given that the company would protect its customers. The chemist of the corporation, accompanied by the Chief Inspector, made a thorough investigation of all of the fields and investigated all complaints. Additional trips were made during the growing season to observe the progress of the corn and hear additional complaints, if any.

It should be remembered that the season of 1917 was abnormal and that a large portion of the corn crop, either with or without fertilizer, failed to mature. Undoubtedly the injury produced by the fertilizer containing borax was greater in 1917 than it would have been in a normal year.

Adjustment of the damage claims was made in November by two of the company's officers and the Chief Inspector of the State Chemist's Department.

By this adjustment, made with each individual farmer who had suffered injury from the fertilizer used, the International Agricultural Corporation, who manufactured the fertilizer, paid the several farmers in and about Francesville, Indiana, the agreed damages amounting to \$8000.00. In the opinion of the State Chemist's Department, the International Agricultural Corporation has been very fair in making these adjustments and certainly made good its promises given to the Chief Inspector earlier in the season.

Slater's Slag.—Much confusion exists in the minds of many consumers in Indiana regarding Slater's Slag as manufactured by the American Basic Phosphate Company of Leatherwood, Tennessee. Two shipments of this slag, 30 tons each, were found and inspected in Indiana in 1917. All sacks were labeled No. 7010, The American Basic Phosphate Company of Leatherwood, Tennessee, guaranteeing Slater's Slag to contain not less than 18 per cent. total phosphoric acid.

In addition to determining total phosphoric acid, available phosphoric acid was ascertained by both the neutral ammonium citrate and the 2.0 per cent. citric acid method, the latter being official for basic slag. The following summary contains the analysis of Slater's Slag, also the average analysis of five known basic slags and one untreated raw rock phosphate (Brown Tennessee Rock), which are given at this time for the purpose of comparison.

| | Total phosphoric acid, per cent. | Phosphoric acid soluble in 2 per cent. citric acid, per cent. | Phosphoric acid soluble in neutral ammonium citrate, per cent. | Found comparative value per ton |
|--------------------------------|---|---|---|--|
| Basic slag ----- | 17.7 | 14.0 | 10.8 | \$15.93 |
| Slater's Slag ----- | 16.2 | 2.3 | 1.4 | 4.86 |
| Untreated rock phosphate ----- | 29.3 | 5.7 | | 8.79 |

The much higher solubility in 2.0 per cent. citric acid of basic slag and also of the untreated raw rock phosphate over Slater's Slag, shows that no injustice has been done the American Basic Phosphate Co., when the State Chemist assigns the same comparative value, 30 cents per unit to Slater's Slag as to untreated rock phosphate.

The preceding two inspections of Slater's Slag which appear in our main inspection table (Table VI) were settled by the manufacturers refunding agents the total cost on the two 30-ton shipments of slag. Mr. Slater, chemist and part owner of the American Basic Phosphate Company, claims these two shipments were sent from the factory in his absence and were not intended for the fertilizer trade in Indiana. No shipments of Slater's Slag have since been found in the State and consumers will confer a favor on the State Chemist by notifying him promptly when a shipment of Slater's Slag is received.

FERTILIZER MAP

The fertilizer map on page 25, now contains 1181 towns where fertilizer is known to be on sale as compared with 544 towns in 1905.

Towns Added to Map in 1917

| County | No. of town on map | Name of town | County | No. of town on map | Name of town |
|-----------------|--------------------|--------------|------------------|--------------------|--------------|
| Benton ----- | 15 | Chase | Madison ----- | 10 | Lapel |
| Brown ----- | 10 | Fruitdale | Miami ----- | 9 | Macy |
| Carroll ----- | 11 | Burlington | Newton ----- | 12 | Beaver City |
| Clinton ----- | 15 | Edna Mills | | 13 | Elmer |
| Howard ----- | 5 | Oakford | Porter ----- | 12 | Chesterton |
| | 6 | Sycamore | Pulaski ----- | 9 | Oak |
| Jackson ----- | 19 | Reddington | Steuben ----- | 11 | Steubenville |
| Kosciusko ----- | 13 | Shakespeare | Tippecanoe ----- | 11 | South Raub |
| Lake ----- | 17 | Dinwiddie | Wabash ----- | 11 | Roann |
| | 18 | Dyer | | | |

ESTIMATED SALES IN 1917 COMPARED WITH THOSE OF 1908 AND 1916

As there is no provision in the fertilizer law requiring a report of sales, absolute data as to the amount of fertilizer purchased annually cannot be secured. However, based upon reports of sales received from a large majority of manufacturers, reports from inspectors, tag orders and similar sources of information, it is estimated that 196,186 tons of fertilizer with a total retail value of \$5,064,987.05 were sold in the State in 1917. Compared with the sales for 1916, this shows an increase of 63,562 tons and an increase in expenditures of \$1,821,170.52, while a decrease of 22,953 tons and an increase of \$119,107.90 in expenditures is shown when compared with 1914 sales, the year the European war began. Compared with sales of 1908, 10 years previous, a gain of 93,877 tons equivalent to 92 per cent. with \$2,607,581.05 increase in expenditures is shown. The reasons for the increase in 1917 over 1916 sales may be summarized briefly as: the Government's campaign for increased crop production, and increase in prices for farm produce.

The variations in formulas, prices and total values are set out in detail in the following table:

Comparison Sales and Formulas, 1908-1916-1917

| Class of fertilizer | Estimated sales, tons | | | Average retail price per ton, dollars | |
|---|-----------------------|---------|---------|---------------------------------------|-------|
| | 1908 | 1916 | 1917 | 1916 | 1917 |
| 1. Acid phosphate, 20 per cent. available phosphoric acid ----- | | 3 | 715 | 20.00 | 23.50 |
| 2. Acid phosphate, 18 per cent. available phosphoric acid ----- | | 2,379 | 2,010 | 23.46 | 19.61 |
| 3. Acid phosphate, 16 to 18 per cent. available phosphoric acid ----- | 42 | 17,775 | 32,796 | 20.30 | 20.22 |
| 4. Acid phosphate, 14 to 16 per cent. available phosphoric acid ----- | 6,733 | 6,160 | 7,041 | 19.74 | 19.79 |
| 5. Acid phosphate, less than 14 per cent. available phosphoric acid ----- | 1,117 | 209 | 47 | 18.00 | ----- |
| 6. Acid phosphate and potash, (K ₂ O), below 1 per cent. ----- | 169 | 33 | ----- | 25.00 | ----- |
| 7. Acid phosphate and potash, (K ₂ O), 1.0 to 2.5 per cent. ----- | 5,562 | 1,523 | 2,653 | 24.56 | 25.89 |
| 8. Acid phosphate and potash, (K ₂ O), 2.5 to 5.0 per cent. ----- | 3,336 | 478 | 285 | 31.81 | 30.75 |
| 9. Acid phosphate and potash, (K ₂ O), 5.0 to 7.5 per cent. ----- | 1,806 | ----- | 618 | 29.80 | 37.62 |
| 10. Acid phosphate and potash, (K ₂ O), 7.5 to 10 per cent. ----- | 855 | ----- | ----- | ----- | ----- |
| 11. Acid phosphate and potash, (K ₂ O), 10 to 12.5 per cent. ----- | 313 | ----- | ----- | ----- | ----- |
| 14. Acid phosphate and untreated rock phosphate ----- | | 250 | 2,145 | 22.00 | 22.55 |
| 15. Ammoniated acid phosphate ----- | 1,182 | 32,578 | 67,820 | 23.30 | 25.69 |
| 16. Complete fertilizer, nitrogen below 0.5 per cent. ----- | 7,443 | 15,416 | 27,121 | 25.77 | 27.97 |
| 17. Complete fertilizer, nitrogen 0.5 to 1.0 per cent. ----- | 26,534 | 8,815 | 27,751 | 25.27 | 28.32 |
| 18. Complete fertilizer, nitrogen 1.0 to 1.6 per cent. ----- | 12,878 | 22,913 | 4,657 | 26.64 | 28.16 |
| 19. Complete fertilizer, nitrogen 1.6 to 2.5 per cent. ----- | 16,569 | 11,404 | 7,366 | 30.20 | 33.23 |
| 20. Complete fertilizer, nitrogen 2.5 to 4.0 per cent. ----- | 1,229 | 150 | 228 | 29.81 | 29.75 |
| 21. Complete fertilizer, nitrogen 4+ per cent. ----- | 65 | 1 | ----- | 120.00 | ----- |
| 23. Peruvian guano ----- | | 15 | ----- | 165.00 | ----- |
| 24. Complete fertilizer, (K ₂ O), below 1.0 per cent.* ----- | 259 | 7,691 | 13,470 | 25.26 | 25.82 |
| 25. Complete fertilizer, (K ₂ O), 1.0 to 2.5 per cent.* ----- | 44,720 | 48,020 | 49,929 | 26.48 | 28.72 |
| 26. Complete fertilizer, (K ₂ O), 2.5 to 5.0 per cent.* ----- | 12,361 | 2,986 | 3,497 | 33.26 | 33.96 |
| 27. Complete fertilizer, (K ₂ O), 5.0 to 7.5 per cent.* ----- | 4,142 | 1 | 227 | ----- | 49.45 |
| 28. Complete fertilizer, (K ₂ O), 7.5 to 10 per cent.* ----- | 2,006 | 1 | ----- | ----- | ----- |
| 29. Complete fertilizer, (K ₂ O), 10 to 12.5 per cent.* ----- | 1,230 | ----- | ----- | ----- | ----- |
| 31. Raw bone ----- | 5,523 | 3,669 | 4,284 | 31.98 | 35.83 |
| 32. Steamed bone ----- | 6,267 | 2,404 | 5,050 | 30.71 | 33.59 |
| 33. Ammoniated bone ----- | | 475 | 91 | 30.00 | 32.00 |
| 35. Acidulated bone ----- | 27 | ----- | ----- | 34.00 | ----- |
| 37. Bone and potash ----- | 1,524 | 329 | 165 | 27.25 | 29.00 |
| 39. Tankage ----- | 520 | 607 | 300 | 25.00 | 40.35 |
| 40. Tankage and potash ----- | 370 | 104 | 27 | 27.32 | ----- |
| 41. Basic slag ----- | 34 | 63 | 7 | 23.25 | ----- |
| 42. Rock phosphate ----- | 432 | 3,272 | 2,424 | 7.78 | 7.86 |
| 43. Rock phosphate and low grade slag ----- | | 305 | 60 | 28.65 | 30.00 |
| 45. Nitrate of soda ----- | 121 | 159 | 93 | 82.50 | 75.00 |
| 46. Dried blood ----- | 34 | 4 | 3 | ----- | ----- |
| 47. Muriate of potash ----- | 660 | ----- | ----- | ----- | ----- |
| 48. Sulphate of potash ----- | 86 | ----- | ----- | ----- | ----- |
| 49. Manure salts ----- | | ----- | ----- | ----- | ----- |
| 50. Kainit ----- | 828 | ----- | ----- | ----- | ----- |
| 51. Tobacco stems ----- | 50 | 144 | 2 | 43.00 | 40.00 |
| 52. Manure ash ----- | | 33 | 2 | ----- | ----- |
| 53. Dried manure ----- | | 855 | 420 | 34.43 | 33.92 |
| 55. Garbo tankage ----- | | 66 | 5 | 16.15 | 19.00 |
| 56. Muck or peat ----- | | 33 | ----- | 37.00 | ----- |
| Totals ----- | 102,300 | 132,624 | 196,186 | ----- | ----- |

* Not included in addition for totals

Comparisons of the spring and fall sales both as regards formulas and retail values are shown in the following:

| Class of fertilizer | Estimated sales, tons | | | Average retail value, dollars | | |
|--|-----------------------|---------|---------|-------------------------------|--------------|--------------|
| | Spring | Fall | Total | Spring | Fall | Total |
| 1. Acid phosphate, 20 per cent. available phosphoric acid ----- | 413 | 302 | 715 | 9,705.50 | 7,097.00 | 16,802.50 |
| 2. Acid phosphate, 18 per cent. available phosphoric acid ----- | 1,188 | 822 | 2,010 | 23,296.68 | 16,119.42 | 39,416.10 |
| 3. Acid phosphate, 16 to 18 per cent. available phosphoric acid ----- | 13,712 | 19,084 | 32,796 | 277,256.64 | 385,878.48 | 663,135.12 |
| 4. Acid phosphate, 14 to 16 per cent. available phosphoric acid ----- | 2,427 | 4,614 | 7,041 | 48,030.33 | 91,311.06 | 139,341.39 |
| 5. Acid phosphate, less than 14 per cent. available phosphoric acid ----- | 30 | 17 | 47 | 547.50 | 310.25 | 857.75 |
| 7. Acid phosphate and potash, (K ₂ O), 1.0 to 2.5 per cent. ----- | 1,178 | 1,475 | 2,653 | 30,498.42 | 38,187.75 | 68,686.17 |
| 8. Acid phosphate and potash, (K ₂ O), 2.5 to 5.0 per cent. ----- | 285 | ----- | 285 | 8,763.75 | ----- | 8,763.75 |
| 9. Acid phosphate and potash, (K ₂ O), 5.0 to 7.5 per cent. ----- | 602 | 16 | 618 | 22,647.24 | 601.92 | 23,249.16 |
| 14. Acid phosphate and untreated rock phosphate ----- | 974 | 1,171 | 2,145 | 21,963.70 | 26,406.05 | 48,369.75 |
| 15. Ammoniated acid phosphate ----- | 23,883 | 43,937 | 67,820 | 613,554.27 | 1,128,741.53 | 1,742,295.80 |
| 16. Complete fertilizer, nitrogen below 0.5 per cent. ----- | 9,527 | 17,594 | 27,121 | 266,470.19 | 492,104.18 | 758,574.37 |
| 17. Complete fertilizer, nitrogen 0.5 to 1.0 per cent. ----- | 15,405 | 12,346 | 27,751 | 436,269.60 | 349,638.72 | 785,908.32 |
| 18. Complete fertilizer, nitrogen 1.0 to 1.6 per cent. ----- | 2,901 | 1,756 | 4,657 | 81,692.16 | 49,448.96 | 131,141.12 |
| 19. Complete fertilizer, nitrogen 1.6 to 2.5 per cent. ----- | 4,695 | 2,671 | 7,366 | 156,014.85 | 88,757.33 | 244,772.18 |
| 20. Complete fertilizer, nitrogen 2.5 to 4.0 per cent. ----- | 149 | 79 | 228 | 4,432.75 | 2,350.25 | 6,783.00 |
| 24. Complete fertilizer, (K ₂ O), below 1.0 per cent.* ----- | 6,803 | 6,667 | 13,470 | 175,653.46 | 172,141.94 | 347,795.40 |
| 25. Complete fertilizer, (K ₂ O), 1.0 to 2.5 per cent.* ----- | 22,498 | 27,431 | 49,929 | 646,142.56 | 787,818.32 | 1,433,960.88 |
| 26. Complete fertilizer, (K ₂ O), 2.5 to 5.0 per cent.* ----- | 3,230 | 267 | 3,497 | 109,090.80 | 9,067.32 | 118,758.12 |
| 27. Complete fertilizer, (K ₂ O), 5.0 to 7.5 per cent.* ----- | 146 | 81 | 227 | 7,219.70 | 4,005.45 | 11,225.15 |
| 31. Raw bone ----- | 199 | 4,085 | 4,284 | 7,130.17 | 146,365.55 | 153,495.72 |
| 32. Steamed bone ----- | 824 | 4,226 | 5,050 | 27,678.16 | 141,951.34 | 169,629.50 |
| 33. Ammoniated bone ----- | 25 | 66 | 91 | 800.00 | 2,112.00 | 2,912.00 |
| 37. Bone and potash ----- | 9 | 156 | 165 | 261.00 | 4,524.00 | 4,785.00 |
| 39. Tankage ----- | 165 | 135 | 300 | 6,657.75 | 5,447.25 | 12,105.00 |
| 40. Tankage and potash ----- | 17 | 10 | 27 | 725.56 | 426.80 | 1,152.36 |
| 41. Basic slag ----- | 7 | ----- | 7 | 201.95 | ----- | 201.95 |
| 42. Rock phosphate ----- | 748 | 1,676 | 2,424 | 5,879.28 | 13,173.36 | 19,052.64 |
| 43. Rock phosphate and low grade slag ----- | ----- | 60 | 60 | ----- | 1,800.00 | 1,800.00 |
| 45. Nitrate of soda ----- | 73 | 20 | 93 | 5,475.00 | 1,500.00 | 6,975.00 |
| 46. Dried blood ----- | 3 | ----- | 3 | 300.00 | ----- | 300.00 |
| 51. Tobacco stems ----- | 1 | 1 | 2 | 40.00 | 40.00 | 80.00 |
| 52. Manure ash ----- | 1 | 1 | 2 | 30.00 | 30.00 | 60.00 |
| 53. Dried manure ----- | 353 | 67 | 420 | 11,973.76 | 2,272.64 | 14,246.40 |
| 55. Garbo tankage ----- | 3 | 2 | 5 | 57.00 | 38.00 | 95.00 |
| Totals ----- | 79,797 | 116,389 | 196,186 | 2,068,353.21 | 2,996,633.84 | 5,064,987.05 |

* Not included in addition for totals

Comparison of sales of 1917 with those of 1916 shows that of 29 classes available, 11 show an increase in sales ranging from 78 tons in complete fertilizer containing 2.5 to 4.0 per cent. nitrogen to 35,242 tons for ammoniated acid phosphate, while 18 show a decrease of from one ton for dried blood, to 18,256 tons for complete fertilizer containing 1.0 to 1.6 per cent. nitrogen.

In the matter of prices, 18 of 25 classes show an increase varying from five cents for acid phosphate, 14 to 16 per cent. available phosphoric

acid, to \$15.35 for tankage, while seven show a decrease varying from six cents for complete fertilizer, nitrogen 2.5 to 4.0 per cent. to \$7.00 for nitrate of soda.

Considering the complete fertilizer on the basis of potash guaranteed, four of five classes show an increase in sales ranging from 226 tons to 5779, while all show an increase in price ranging from 56 cents to \$2.24.

The sale of brands containing an excess of 5.0 per cent. of potash was practically eliminated in 1916 but shows a substantial increase during 1917. At present, indications are that more potash will be available for the 1918 fertilizer trade.

To illustrate the variation in prices which have prevailed since the war began the following summary of average spring and fall prices for classes available is published.

| Class of fertilizer | Average retail price, dollars | | | |
|--|-------------------------------|--------|--------|-------|
| | 1916 | | 1917 | |
| | Spring | Fall | Spring | Fall |
| 1. Acid phosphate, 20 per cent. available phosphoric acid..... | ----- | 20.00 | 22.33 | 27.00 |
| 2. Acid phosphate, 18 per cent. available phosphoric acid..... | 24.00 | 23.08 | 19.27 | 23.00 |
| 3. Acid phosphate, 16 to 18 per cent. available phosphoric acid..... | 19.72 | 20.60 | 18.77 | 22.30 |
| 4. Acid phosphate, 14 to 16 per cent. available phosphoric acid..... | 20.02 | 18.66 | 18.07 | 22.20 |
| 5. Acid phosphate, less than 14 per cent. available phosphoric acid..... | 18.00 | ----- | ----- | ----- |
| 7. Acid phosphate and potash, (K ₂ O), 1.0 to 2.5 per cent..... | 24.78 | 22.84 | 25.25 | 26.70 |
| 8. Acid phosphate and potash, (K ₂ O), 2.5 to 5.0 per cent..... | 31.50 | 32.33 | 30.75 | ----- |
| 9. Acid phosphate and potash, (K ₂ O), 5.0 to 7.5 per cent..... | 29.80 | ----- | 37.62 | ----- |
| 14. Acid phosphate and untreated rock phosphate..... | 22.00 | ----- | 21.00 | 22.94 |
| 15. Ammoniated acid phosphate..... | 23.04 | 24.04 | 23.14 | 28.17 |
| 16. Complete fertilizer, nitrogen below 0.5 per cent..... | 26.13 | 25.34 | 26.09 | 29.99 |
| 17. Complete fertilizer, nitrogen 0.5 to 1.0 per cent..... | 26.79 | 23.69 | 26.86 | 31.26 |
| 18. Complete fertilizer, nitrogen 1.0 to 1.6 per cent..... | 32.24 | 21.96 | 26.70 | 35.00 |
| 19. Complete fertilizer, nitrogen 1.6 to 2.5 per cent..... | 31.14 | 28.89 | 31.94 | 37.64 |
| 20. Complete fertilizer, nitrogen 2.5 to 4.0 per cent..... | 30.13 | 29.50 | 29.75 | ----- |
| 21. Complete fertilizer, nitrogen 4+ per cent..... | ----- | 120.00 | ----- | ----- |
| 23. Peruvian guano..... | 165.00 | ----- | ----- | ----- |
| 24. Complete fertilizer, (K ₂ O), below 1.0 per cent..... | 26.45 | 23.80 | 24.54 | 28.31 |
| 25. Complete fertilizer, (K ₂ O), 1.0 to 2.5 per cent..... | 27.17 | 25.20 | 26.84 | 31.54 |
| 26. Complete fertilizer, (K ₂ O), 2.5 to 5.0 per cent..... | 32.99 | 33.76 | 33.10 | 38.83 |
| 27. Complete fertilizer, (K ₂ O), 5.0 to 7.5 per cent..... | ----- | ----- | 49.45 | ----- |
| 31. Raw bone..... | 33.50 | 31.79 | 32.33 | 36.42 |
| 32. Steamed bone..... | 28.34 | 29.77 | 32.31 | 34.15 |
| 33. Ammoniated bone..... | 29.67 | 30.33 | ----- | 32.00 |
| 34. Precipitated bone..... | ----- | 34.00 | ----- | ----- |
| 37. Bone and potash..... | 27.00 | 27.44 | 26.00 | 30.50 |
| 39. Tankage..... | 33.13 | 30.00 | 33.56 | 51.67 |
| 40. Tankage and potash..... | 27.33 | ----- | ----- | ----- |
| 41. Basic slag..... | 21.50 | 25.00 | ----- | ----- |
| 42. Rock phosphate..... | 5.08 | 7.12 | 7.89 | 7.78 |
| 43. Rock phosphate and low grade slag..... | 28.65 | ----- | ----- | 30.00 |
| 45. Nitrate of soda..... | 82.50 | ----- | 75.00 | ----- |
| 51. Tobacco stems..... | 40.00 | 44.50 | 40.00 | ----- |
| 53. Dried manure..... | 29.33 | 100.00 | 28.70 | 60.00 |
| 55. Garbo tankage..... | 16.15 | ----- | 19.00 | ----- |
| 56. Muck or peat..... | 37.00 | ----- | ----- | ----- |

PURCHASING FERTILIZER

The necessity for conservation in all practical affairs at the present time leads us again to emphasize the important fact we have been endeavoring to impress upon purchasers of fertilizer for many years, namely, that low price per ton does not necessarily and in fact rarely ever means low price per unit of plant food. Economy and profitable results in the purchase and use of fertilizer demand that the purchaser: (1) decide upon the plant food or foods required by the soil and crop, and purchase such plant food or foods, and no other; (2) decide upon the form in which such plant food or foods should be used; (3) purchase the plant food or foods in the form desired, at the lowest price per unit of plant food and not on the basis of cost per ton.

COMPARISON OF STANDING OF MANUFACTURERS

Those desiring to compare the relative inspection standing of the various manufacturers are respectfully referred to Tables II, III, IV and VI. The first three summarize the results of the inspection and should always be considered in conjunction with Table VI, which contains the details from which the summaries are compiled.

Purchase from companies which maintain their guarantees.

REPORT OF INSPECTION MADE IN 1917

The inspectors of the State Chemist's Department visited every county of the State in the spring and fall of 1917 and secured 1390 samples, each county being represented in the inspection.

In the spring, 781 samples representing 422 brands and 67 manufacturers were secured in 225 towns of the 330 towns visited, and in the fall 609 samples representing 351 brands and 67 manufacturers were secured in 168 of the 220 towns visited. It should be noted that the use of the word *towns* in this connection, means that not only the town itself but surrounding territory was inspected.

Four hundred fifty-one samples are omitted from record in this bulletin. These samples represent the work of the inspector referred to on page 9. It was shown on investigation of information brought to the attention of the Department that in certain cases the inspector in question had failed to follow in all respects the official instructions as to methods of sampling. The inspector was immediately dismissed and although there was no reason to believe that his failure to follow instructions applied to any large number of samples, yet in order that there might be no possibility of any samples being reported which might not have been representative of the shipments from which they were drawn, all samples taken by this inspector were withdrawn from official record. This leaves 919 samples, the analyses of which are reported in this bulletin.

The 919 samples reported in this bulletin were divided as follows:

| Class of fertilizer | Spring | Fall | Total |
|--|--------|-------|-------|
| 1. Acid phosphate, 20 per cent. available phosphoric acid | 3 | 1 | 4 |
| 2. Acid phosphate, 18 to 20 per cent. available phosphoric acid | 10 | 1 | 11 |
| 3. Acid phosphate, 16 to 18 per cent. available phosphoric acid | 52 | 35 | 87 |
| 4. Acid phosphate, 14 to 16 per cent. available phosphoric acid | 14 | 10 | 24 |
| 7. Acid phosphate and potash, (K ₂ O), 1.0 to 2.5 per cent. | 11 | 5 | 16 |
| 8. Acid phosphate and potash, (K ₂ O), 2.5 to 5.0 per cent. | 2 | ----- | 2 |
| 9. Acid phosphate and potash, (K ₂ O), 5.0 to 7.5 per cent. | 10 | ----- | 10 |
| 14. Acid phosphate and untreated rock phosphate | 1 | 4 | 5 |
| 15. Ammoniated acid phosphate | 138 | 142 | 280 |
| 16. Complete fertilizer, nitrogen below 0.5 per cent. | 72 | 69 | 141 |
| 17. Complete fertilizer, nitrogen 0.5 to 1.0 per cent. | 113 | 59 | 172 |
| 18. Complete fertilizer, nitrogen 1.0 to 1.6 per cent. | 14 | 4 | 18 |
| 19. Complete fertilizer, nitrogen 1.6 to 2.5 per cent. | 49 | 14 | 63 |
| 20. Complete fertilizer, nitrogen 2.5 to 4.0 per cent. | 2 | ----- | 2 |
| 21. Complete fertilizer, potash below 1.0 per cent.* | 42 | 22 | 64 |
| 25. Complete fertilizer, potash 1.0 to 2.5 per cent.* | 171 | 118 | 289 |
| 26. Complete fertilizer, potash 2.5 to 5.0 per cent.* | 34 | 6 | 40 |
| 27. Complete fertilizer, potash, 5.0 to 7.5 per cent.* | 3 | ----- | 3 |
| 31. Raw bone | 3 | 19 | 22 |
| 32. Steamed bone | 8 | 18 | 26 |
| 33. Ammoniated bone | ----- | 1 | 1 |
| 37. Bone and potash | 1 | 2 | 3 |
| 39. Tankage | 5 | 3 | 8 |
| 42. Rock phosphate | 6 | 4 | 10 |
| 43. Rock phosphate and low grade slag | ----- | 2 | 2 |
| 45. Nitrate of soda | 1 | ----- | 1 |
| 51. Tobacco stems | 1 | ----- | 1 |
| 53. Dried manure | 8 | 1 | 9 |
| 55. Garbo tankage | 1 | ----- | 1 |
| Totals | 525 | 394 | 919 |

* Not included in totals

Manufacturers' guarantees, names and addresses of persons from whom obtained, and detailed results of the analyses of the samples above summarized will be found in Table VI, which shows the manufacturers' promises and how they were kept.

Summary of Inspections for the Past Eighteen Years

| Year | Number of samples reported | Number equal to guarantee in every particular | Number equal in value to guarantee | Number within 10 per cent. of value of guarantee | Total number equal and within 10 per cent. of value of guarantee | Number not within 10 per cent. of value of guarantee | Number with one or more ingredients 20 per cent. below guarantee | Number with one or more ingredients 30 per cent. below guarantee | Number with one or more ingredients 50 per cent. below guarantee |
|--------|----------------------------|---|------------------------------------|--|--|--|--|--|--|
| 1900 | 468 | 76 | 206 | 99 | 305 | 163 | 214 | * | * |
| 1901 | 592 | 281 | 469 | 85 | 554 | 38 | 103 | * | * |
| 1902 | 679 | 335 | 564 | 98 | 657 | 22 | 112 | * | * |
| 1903 | 674 | 286 | 492 | 139 | 631 | 43 | 138 | * | * |
| 1904 | 643 | 248 | 451 | 148 | 599 | 44 | 122 | 65 | 21 |
| 1905 | 734 | 312 | 528 | 158 | 686 | 48 | 148 | 77 | 21 |
| 1906 | 879 | 374 | 642 | 176 | 818 | 61 | 136 | 64 | 25 |
| 1907 | 793 | 265 | 481 | 210 | 691 | 102 | 177 | 75 | 29 |
| 1908 | 901 | 391 | 683 | 171 | 854 | 47 | 134 | 51 | 8 |
| 1909 | 969 | 417 | 720 | 215 | 935 | 34 | 138 | 52 | 12 |
| 1910 | 1118 | 441 | 834 | 242 | 1076 | 42 | 169 | 75 | 9 |
| 1911 | 1095 | 527 | 896 | 189 | 1076 | 19 | 98 | 22 | 2 |
| 1912 | 1220 | 636 | 1034 | 175 | 1209 | 11 | 63 | 18 | 3 |
| 1913 | 1204 | 714 | 1021 | 178 | 1199 | 5 | 41 | 12 | 4 |
| 1914 | 1396 | 727 | 1152 | 239 | 1391 | 5 | 51 | 14 | 2 |
| 1915 | 1368 | 684 | 1145 | 214 | 1359 | 9 | 92 | 31 | 6 |
| 1916 | 1367 | 870 | 1183 | 168 | 1351 | 16 | 102 | 40 | 6 |
| 1917 | 919 | 622 | 830 | 76 | 906 | 13 | 60 | 22 | 5 |
| Totals | 17019 | 8206 | 13331 | 2966 | 16297 | 722 | 2098 | 618 | 153 |

Summary Comparing Inspection, Spring and Fall Samples, 1917

| | Spring | Fall | Spring per cent. | Fall per cent. | Year per cent. |
|--|--------|-------|------------------------|----------------------|----------------------|
| Number samples reported | 525 | 394 | 57.1 | 42.9 | ----- |
| Number equal to guarantee in every particular | 354 | 268 | 67.4 | 68.0 | 67.7 |
| Number equal to value of guarantee | 467 | 363 | 89.0 | 92.1 | 90.3 |
| Number within 10 per cent. of value of guarantee | 51 | 25 | 9.7 | 6.3 | 8.3 |
| Number equal and within 10 per cent. of value of guarantee | 518 | 388 | 98.7 | 98.5 | 98.6 |
| Number not within 10 per cent. of value of guarantee | 7 | 6 | 1.3 | 1.5 | 1.4 |
| Number with one or more ingredients 10 per cent. below guarantee | 81 | 71 | 15.4 | 18.0 | 16.5 |
| Number with one or more ingredients 20 per cent. below guarantee | 26 | 34 | 5.0 | 8.6 | 6.5 |
| Number with one or more ingredients 30 per cent. below guarantee | 9 | 13 | 1.7 | 3.3 | 2.4 |
| Number with one or more ingredients 50 per cent. below guarantee | 2 | 3 | .4 | .8 | .5 |
| Number less than \$1.00 per ton below value of guarantee | 37 | 15 | 7.0 | 3.8 | 5.7 |
| Number \$1.00 to \$2.00 per ton below value of guarantee | 11 | 10 | 2.1 | 2.5 | 2.3 |
| Number \$2.00 to \$3.00 per ton below value of guarantee | 2 | 2 | .4 | .5 | .4 |
| Number \$3.00 to \$4.00 per ton below value of guarantee | 2 | 1 | .4 | .3 | .3 |
| Number \$4.00 to \$5.00 per ton below value of guarantee | 3 | 1 | .6 | .3 | .4 |
| Number \$5.00 to \$6.00 per ton below value of guarantee | ----- | 1 | ----- | .3 | .1 |
| Number \$6.00 to \$7.00 per ton below value of guarantee | 1 | ----- | .2 | ----- | .1 |
| Number \$7.00 to \$8.00 per ton below value of guarantee | 1 | 1 | .2 | .3 | .2 |
| Number \$12.00 to \$13.00 per ton below value of guarantee | 1 | ----- | .2 | ----- | .1 |
| Number \$1.00 or more per ton above value of guarantee | 368 | 281 | 70.1 | 71.3 | 70.6 |
| Number above value of guarantee per ton | 458 | 354 | 87.2 | 89.8 | 88.4 |
| Average deficiency per ton "Within 10 per cent of value samples" dollars | .71 | .97 | ----- | ----- | ----- |
| Average deficiency per ton "Not within 10 per cent of value samples" dollars | 6.24 | 4.06 | ----- | ----- | ----- |

The preceding summary shows that the 1917 inspection compares favorably with past inspections, especially as regards the percentage of samples "up to guarantee in every particular," there being 67.7 per cent. as compared with 64.1 per cent., the previous high record in 1916.

Compared with the inspection of 1916, that of 1917 shows better results as regards samples up to guarantee, 67.7 per cent. against 64.1 per cent.; samples "equal to value of guarantee," 90.3 per cent. against 86.9 per cent. The number of samples less than \$1.00 per ton below value of guarantee and the number \$1.00 or more per ton above value of guarantee were decidedly better in the 1917 inspection, and manufacturers of fertilizer should be credited for the high standard they maintained in 1917, when it is considered that they were forced to manufacture their products under extremely adverse conditions caused by the shortage of raw materials, labor, burlap bags, lack of adequate number of freight cars and transportation, and extreme shortage of sulphuric acid.

While in the past years, the fall inspection has been superior to the spring inspection of the same year, no such difference exists in the 1917 inspection. Both spring and fall inspections were very similar throughout.

FERTILIZER MAP



TABLE I.—Summary of Inspection on the Basis of Composition, Guaranteed, Found and Retail Values

| Class of fertilizer | Number of samples | Nitrogen, N, average per cent. | | Potash, K ₂ O, soluble in water, average per cent. | | Available phosphoric acid, P ₂ O ₅ , average per cent. | | Insoluble phosphoric acid, P ₂ O ₅ , average per cent. | | Total phosphoric acid, P ₂ O ₅ , average per cent. | | Comparative value per ton, dollars | | Retail price per ton, average, dollars | Comparison price and found comparative value per ton, dollars | Range in price per ton, dollars |
|--|-------------------|--------------------------------|-------|---|-------|--|-------|--|-------|--|-------|------------------------------------|-------|--|---|---------------------------------|
| | | Guar. | Found | Guar. | Found | Guar. | Found | Guar. | Found | Guar. | Found | Guar. | Found | | | |
| 1. Acid phosphate, 20 per cent. available phosphoric acid. | 4 | --- | --- | --- | --- | 20.0 | 21.0 | 1.5 | 0.9 | --- | --- | 24.00 | 25.23 | 23.50 | — 1.73 | 20.00-27.00 |
| 2. Acid phosphate, 18 to 20 per cent. available phosphoric acid. | 11 | --- | --- | --- | --- | 17.9 | 18.6 | 0.6 | 0.6 | --- | --- | 21.38 | 22.59 | 19.61 | — 2.98 | 16.75-23.00 |
| 3. Acid phosphate, 16 to 18 per cent. available phosphoric acid. | 87 | --- | --- | --- | --- | 16.0 | 16.6 | 0.9 | 1.8 | --- | --- | 19.20 | 20.15 | 20.22 | + 0.07 | 15.00-26.00 |
| 4. Acid phosphate, 14 to 16 per cent. available phosphoric acid. | 24 | --- | --- | --- | --- | 14.0 | 14.6 | 1.3 | 1.9 | --- | --- | 16.80 | 17.60 | 19.79 | + 2.19 | 16.50-24.00 |
| 7. Acid phosphate and potash, K ₂ O, 1.0 to 2.5 per cent. | 16 | --- | --- | 1.4 | 1.4 | 11.9 | 12.4 | 1.0 | 1.8 | --- | --- | 22.53 | 22.91 | 25.89 | + 2.98 | 20.50-31.00 |
| 8. Acid phosphate and potash, K ₂ O, 2.5 to 5.0 per cent. | 2 | --- | --- | 3.0 | 4.0 | 8.0 | 8.1 | --- | 1.9 | --- | --- | 27.60 | 33.72 | 30.75 | — 2.97 | 28.50-33.00 |
| 9. Acid phosphate and potash, K ₂ O, 5.0 to 7.5 per cent. | 10 | --- | --- | 5.0 | 4.9 | 5.0 | 5.6 | 1.0 | 1.4 | --- | --- | 36.00 | 36.09 | 37.62 | + 1.53 | 35.25-42.00 |
| 14. Acid phosphate and untreated rock phosphate. | 5 | --- | --- | --- | --- | 10.0 | 9.5 | 12.0 | 14.8 | --- | --- | 12.00 | 11.85 | 22.55 | + 11.20 | 19.75-25.00 |
| 15. Ammoniated acid phosphate. | 280 | 1.1 | 1.2 | --- | --- | 11.2 | 11.6 | 2.6 | 3.3 | --- | --- | 19.66 | 21.46 | 25.69 | + 4.23 | 16.25-38.00 |
| 16. Complete fertilizer, nitrogen below 0.5 per cent. | 141 | 0.4 | 0.6 | 1.2 | 1.2 | 10.7 | 11.2 | 1.4 | 3.1 | --- | --- | 22.54 | 24.76 | 27.97 | + 3.21 | 20.00-42.35 |
| 17. Complete fertilizer, nitrogen 0.5 to 1.0 per cent. | 172 | 0.8 | 1.0 | 1.3 | 1.3 | 9.0 | 9.6 | 1.2 | 1.6 | --- | --- | 23.02 | 25.07 | 28.32 | + 3.25 | 19.75-44.00 |
| 18. Complete fertilizer, nitrogen 1.0 to 1.6 per cent. | 18 | 1.2 | 1.2 | 0.9 | 1.1 | 10.1 | 10.1 | 1.1 | 3.2 | --- | --- | 23.52 | 25.75 | 28.16 | + 2.41 | 23.00-38.00 |
| 19. Complete fertilizer, nitrogen 1.6 to 2.5 per cent. | 63 | 1.8 | 1.9 | 1.3 | 1.4 | 8.3 | 8.7 | 2.0 | 2.8 | --- | --- | 27.38 | 32.55 | 33.23 | + 0.68 | 27.00-56.00 |
| 20. Complete fertilizer, nitrogen 2.5 to 4.0 per cent. | 2 | 2.9 | 2.8 | 1.0 | 1.2 | 7.0 | 9.1 | 4.0 | 3.4 | --- | --- | 29.45 | 33.12 | 29.75 | — 3.37 | 26.00-33.50 |
| 24. Complete fertilizer, potash below 1.0 per cent. | 64 | 0.8 | 1.0 | 0.5 | 0.6 | 11.0 | 11.3 | 2.6 | 3.8 | --- | --- | 20.42 | 23.24 | 25.82 | + 2.58 | 19.75-33.00 |
| 25. Complete fertilizer, potash 1.0 to 2.5 per cent. | 289 | 0.9 | 1.0 | 1.2 | 1.2 | 9.5 | 10.0 | 1.3 | 2.2 | --- | --- | 22.06 | 25.22 | 28.72 | + 3.50 | 19.50-44.00 |
| 26. Complete fertilizer, potash 2.5 to 5.0 per cent. | 40 | 0.7 | 0.9 | 3.0 | 2.9 | 7.8 | 8.4 | 1.2 | 1.4 | --- | --- | 31.29 | 32.65 | 33.96 | + 1.31 | 28.83-44.00 |
| 27. Complete fertilizer, potash 5.0 to 7.5 per cent. | 3 | 1.4 | 1.6 | 5.0 | 3.9 | 8.7 | 8.6 | 2.0 | 2.0 | --- | --- | 48.27 | 42.54 | 49.45 | + 6.91 | 42.35-56.00 |
| 31. Raw bone | 22 | 3.0 | 3.4 | --- | --- | --- | --- | --- | --- | 21.8 | 23.5 | 32.45 | 35.94 | 35.83 | — 0.11 | 30.00-40.00 |
| 32. Steamed bone | 26 | 1.5 | 1.8 | --- | --- | --- | --- | --- | --- | 27.5 | 29.5 | 32.73 | 33.50 | --- | + 0.80 | 31.00-37.50 |
| 33. Ammoniated bone | 1 | 2.0 | 2.6 | --- | --- | --- | --- | --- | --- | 28.0 | 21.9 | 33.40 | 30.52 | 32.00 | + 1.48 | --- |
| 37. Bone and potash | 3 | 0.4 | 0.7 | 1.0 | 1.0 | --- | --- | --- | --- | 16.0 | 16.5 | 20.80 | 22.47 | 29.00 | + 6.53 | 26.00-31.00 |
| 39. Tankage | 8 | 4.3 | 5.1 | --- | --- | --- | --- | --- | --- | 13.2 | 17.6 | 30.64 | 30.52 | 40.35 | + 0.83 | 27.80-60.00 |
| 42. Rock phosphate | 10 | --- | --- | --- | --- | --- | --- | --- | --- | 28.3 | 30.0 | 7.00 | 7.88 | 7.86 | + 0.03 | 6.05-10.00 |
| 43. Rock phosphate and low grade slag | 1 | 15.2 | 15.4 | --- | --- | --- | --- | --- | --- | 18.0 | 16.2 | 4.50 | 4.04 | 30.00 | + 25.96 | --- |
| 45. Nitrate of soda | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 76.00 | 77.00 | 75.00 | — 2.00 | --- |
| 51. Tobacco stems | 1 | 1.0 | 2.0 | 5.0 | 7.1 | --- | --- | --- | --- | --- | --- | 35.00 | 52.60 | 40.00 | + 17.60 | --- |
| 53. Dried manure | 9 | 1.8 | 2.0 | 1.2 | 1.9 | --- | --- | --- | --- | 1.2 | 2.1 | 17.30 | 23.51 | 33.92 | + 10.41 | 19.00-60.00 |
| 55. Garbo tankage | 1 | 2.0 | 2.6 | 0.8 | 0.9 | --- | --- | --- | --- | 1.4 | 2.8 | 15.92 | 20.64 | 19.00 | — 1.64 | --- |

Classification of Brands which Did Not Equal in Value the Guarantee

| Class of fertilizer | Number within 10 per cent. of value of guarantee | | | Number not within 10 per cent. of value of guarantee | | |
|---|--|------|-------|--|------|-------|
| | Spring | Fall | Total | Spring | Fall | Total |
| 3. Acid phosphate, 16 to 18 per cent. available phosphoric acid | 8 | 2 | 10 | 1 | --- | 1 |
| 4. Acid phosphate, 14 to 16 per cent. available phosphoric acid | 3 | 1 | 4 | --- | --- | --- |
| 7. Acid phosphate and potash, K_2O , 1.0 to 2.5 per cent. | 2 | 2 | 4 | 1 | --- | 1 |
| 9. Acid phosphate and potash, K_2O , 5.0 to 7.5 per cent. | 6 | --- | 6 | 1 | --- | 1 |
| 14. Acid phosphate and untreated rock phosphate | --- | 1 | 1 | --- | 1 | 1 |
| 15. Ammoniated acid phosphate | 6 | 4 | 10 | --- | --- | --- |
| 16. Complete fertilizer, nitrogen, N, below 0.5 per cent. | 8 | 5 | 13 | 1 | 2 | 3 |
| 17. Complete fertilizer, nitrogen, N, 0.5 to 1.0 per cent. | 8 | 6 | 14 | 2 | 2 | 4 |
| 19. Complete fertilizer, nitrogen, N, 1.6 to 2.5 per cent. | 7 | 1 | 8 | 1 | --- | 1 |
| 31. Raw bone | --- | 1 | 1 | --- | --- | --- |
| 32. Steamed bone | 1 | --- | 1 | --- | --- | --- |
| 33. Ammoniated bone | --- | 1 | 1 | --- | --- | --- |
| 42. Rock phosphate | 2 | --- | 2 | --- | --- | --- |
| 43. Rock phosphate and low grade slag | --- | 1 | 1 | --- | 1 | 1 |
| Totals | 51 | 25 | 76 | 7 | 6 | 13 |

Classification of Brands in which One or More Ingredients were not Within 10 Per Cent. of Guarantee

| Class of fertilizer | Number with one or more ingredients below guarantee | | | | Number with two ingredients below guarantee | | | Number below guarantee in | |
|---|---|--------------------|--------------------|----------------------|---|--------------------|----------------------|---------------------------|---------------|
| | 10 to 20 per cent. | 20 to 30 per cent. | 30 to 50 per cent. | 50 or more per cent. | 10 to 20 per cent. | 20 to 30 per cent. | 30 or more per cent. | 2 ingredients | 3 ingredients |
| 3. Acid phosphate, 16 to 18 per cent. available phosphoric acid | 2 | 2 | 1 | --- | --- | --- | --- | 1 | --- |
| 7. Acid phosphate and potash, K_2O , 1.0 to 2.5 per cent. | 6 | 3 | 1 | 1 | --- | --- | --- | 4 | --- |
| 9. Acid phosphate and potash, K_2O , 5.0 to 7.5 per cent. | 1 | --- | --- | --- | --- | --- | --- | 2 | --- |
| 14. Acid phosphate and untreated rock phosphate | 1 | 1 | --- | --- | --- | --- | --- | --- | --- |
| 15. Ammoniated acid phosphate | 18 | 5 | --- | --- | 1 | --- | --- | 3 | --- |
| 16. Complete fertilizer, nitrogen, N, below 0.5 per cent. | 49 | 27 | 10 | 1 | 1 | --- | --- | 11 | 2 |
| 17. Complete fertilizer, nitrogen, N, 0.5 to 1.0 per cent. | 44 | 12 | 5 | 2 | 3 | --- | --- | 11 | 3 |
| 18. Complete fertilizer, nitrogen, N, 1.0 to 1.6 per cent. | 2 | --- | --- | --- | --- | --- | --- | --- | --- |
| 19. Complete fertilizer, nitrogen, N, 1.6 to 2.0 per cent. | 18 | 6 | 3 | --- | --- | --- | --- | 5 | 3 |
| 32. Steamed bone | 2 | --- | --- | --- | --- | --- | --- | --- | --- |
| 33. Ammoniated bone | 1 | 1 | --- | --- | --- | --- | --- | --- | --- |
| 37. Bone and potash | 1 | --- | --- | --- | --- | --- | --- | --- | --- |
| 39. Tankage | 2 | 1 | --- | --- | --- | --- | --- | --- | --- |
| 43. Rock phosphate and low grade slag | 2 | --- | --- | --- | --- | --- | --- | 1 | --- |
| 53. Dried manure | 3 | 2 | 2 | 1 | --- | --- | --- | --- | --- |
| Totals | 152 | 60 | 22 | 5 | 5 | --- | --- | 38 | 8 |

The brands listed above were deficient in fertilizing ingredients as follows:

| Ingredient | Number below guarantee | | | |
|---------------------------|------------------------|--------------------|--------------------|-----------------------|
| | 10 to 20 per cent. | 20 to 30 per cent. | 30 to 50 per cent. | 50 and over per cent. |
| Nitrogen | 15 | 3 | 1 | 1 |
| Potash | 47 | 28 | 15 | 4 |
| Available phosphoric acid | 23 | 6 | 1 | --- |
| Total phosphoric acid | 13 | 1 | --- | --- |
| Totals | 98 | 38 | 17 | 5 |

RESULTS OF INSPECTION

A slight decrease of 0.3 per cent. is shown in the "equal and within 10 per cent column" when compared with that of 1916. However, there is an improvement shown in the percentage of samples in the "20 per cent. column," there being 6.5 per cent. in 1917 compared with 7.4 per cent. in 1916. When compared, item for item, the 1917 inspection shows a slight superiority over that of 1916.

The inspections for the past 18 years are compared in the following summary:

| Year | Per cent. equal and within 10 per cent. of value of guarantee | Per cent. with in- gredients 20 per cent. below guarantee | Year | Per cent. equal and within 10 per cent. of value of guarantee | Per cent. with in- gredients 20 per cent. below guarantee | Year | Per cent. equal and within 10 per cent. of value of guarantee | Per cent. with in- gredients 20 per cent. below guarantee |
|------|--|--|------|--|--|------|--|--|
| 1900 | 65.2 | 45.7 | 1906 | 93.1 | 15.5 | 1912 | 99.1 | 5.1 |
| 1901 | 93.6 | 17.4 | 1907 | 87.1 | 22.3 | 1913 | 99.6 | 3.4 |
| 1902 | 96.7 | 16.5 | 1908 | 94.8 | 14.9 | 1914 | 99.6 | 3.7 |
| 1903 | 93.6 | 20.5 | 1909 | 96.5 | 14.0 | 1915 | 99.4 | 6.7 |
| 1904 | 93.1 | 18.9 | 1910 | 96.2 | 15.2 | 1916 | 98.9 | 7.4 |
| 1905 | 93.4 | 20.0 | 1911 | 98.3 | 8.9 | 1917 | 98.6 | 6.5 |

The results in Table I show that of 29 classes available for comparison, 22 equal or exceed guarantee in every particular and 25 are above the average guaranteed value, with a range of 38 cents for class 7, (acid phosphate and potash 1.0 to 2.5 per cent.), to \$17.60 for class 51, (tobacco stems). Four classes show a lower found value than guaranteed value, ranging from 46 cents for class 43, rock phosphate and low grade slag, to \$5.73 for class 27, complete fertilizer, potash 5.0 to 7.5 per cent. One class was below guarantee in nitrogen 0.1 per cent., three classes below in potash respectively 0.1, 0.1, and 1.1 per cent., two classes below in available phosphoric acid 0.5 and 0.1 per cent., and two classes below in total phosphoric acid 6.1 and 1.8 per cent.

It is very gratifying to the State Chemist's Department that in the annual summary, it was necessary to print only one company's record in bold type. The American Basic Phosphate Company had 50 per cent. of the samples inspected not within 10 per cent. of the value of guarantee. As mentioned in the discussion on page 17, only two shipments of the material of this Company could be found by the inspectors of the Department and hence only two samples were taken for analysis.

PRICES USED IN SECURING THE COMPARATIVE VALUES OF FERTILIZERS

Owing to the uncertainty of prices of fertilizer materials in the open markets, many fertilizer control officials have omitted fixing values for fertilizer ingredients the current year. Since these values as used by the Department are not for the purpose of fixing the commercial values of fertilizers but for comparative purposes only, it has been decided to continue past practice and the values which appear later have been decided as fair on the basis of present market condition after consultation with manufacturers, agents, dealers, market reports and information collected by the inspectors.

These values will not give the prices at which fertilizer should be sold at all points in the State and should not be used for such a purpose. They are for use in comparing the value of inspection samples with manufacturers' guarantees and can be used advantageously by fertilizer purchasers in calculating the relative values of similar brands offered for sale by different manufacturers.

The following prices were used in securing the comparative values of samples reported in this bulletin.

Nitrogen, 25 cents per pound; \$5.00 per unit.

Potash soluble in water, 30 cents per pound; \$6.00 per unit.

Soluble and reverted (available) phosphoric acid, six cents per pound; \$1.20 per unit.

Total phosphoric acid in bone, tankage and basic slag, four cents per pound; 80 cents per unit.

Total phosphoric acid in rock phosphate, one and one-fourth cents per pound; 25 cents per unit.

Insoluble phosphoric acid in mixed fertilizers containing nitrogen, two cents per pound; 40 cents per unit.

Insoluble phosphoric acid in precipitated bone, four cents per pound; 80 cents per unit.

Insoluble phosphoric acid in mixed fertilizers containing no nitrogen, *no value*.

For use in determining the comparative values of fertilizers inspected in 1918 the following prices have been adopted:

| | Per pound cents | Per unit or per cent. dollars |
|---|-----------------------|-------------------------------------|
| All fertilizers | | |
| Nitrogen (N) | 27½ | 5.50 |
| Potash (K ₂ O) soluble in water | 30 | 6.00 |
| Soluble and reverted phosphoric acid (P ₂ O ₅) | 7 | 1.40 |
| Mixed fertilizers containing nitrogen | | |
| Insoluble phosphoric acid (P ₂ O ₅) | 2 | 0.40 |
| Precipitated bone | | |
| Available phosphoric acid (P ₂ O ₅) | 7 | 1.40 |
| Insoluble phosphoric acid (P ₂ O ₅) | 4½ | 0.90 |
| Animal by-products, bone, tankage, etc. | | |
| Total phosphoric acid (P ₂ O ₅) | 4½ | 0.90 |
| Basic slag | | |
| Total phosphoric acid (P ₂ O ₅) | 4½ | 0.90 |
| Rock phosphate (floats) | | |
| Total phosphoric acid (P ₂ O ₅) | 1½ | 0.30 |
| Rock phosphate and low grade slag | | |
| Total phosphoric acid (P ₂ O ₅) | 1½ | 0.30 |
| Mixed fertilizer, acid phosphate, etc., containing no nitrogen | | |
| Insoluble phosphoric acid | 0 | 0.00 |

In order to ascertain the comparative value of any fertilizer in 1918, proceed as follows:

In acidulated fertilizers containing nitrogen:

Multiply \$5.50 by the guaranteed per cent. of nitrogen.

Multiply \$6.00 by the guaranteed per cent. of potash soluble in water.

Multiply \$1.40 by the guaranteed per cent. of soluble and reverted (available) phosphoric acid.

Multiply \$0.40 by the guaranteed per cent. of insoluble phosphoric acid.

Add the numbers thus obtained, and the sum is the estimated comparative value of a ton of the fertilizer.

If no nitrogen is guaranteed, the multiplication of 40 cents by the per cent. of insoluble phosphoric acid and the addition of the product thus obtained should be omitted.

Example: If it is desired to ascertain the estimated comparative value of an acidulated complete fertilizer guaranteed to contain 2.0 per cent. of nitrogen, 2.0 per cent. of potash soluble in water, 8.0 per cent. of soluble and reverted (available) phosphoric acid and 2.0 per cent. of insoluble phosphoric acid, the calculation becomes:

$$\begin{array}{rcl} \$5.50 \times 2 & = & \$11.00\text{—nitrogen} \\ 6.00 \times 2 & = & 12.00\text{—potash} \\ 1.40 \times 8 & = & 11.20\text{—available } P_2O_5 \\ 0.40 \times 2 & = & 00.80\text{—insoluble } P_2O_5 \end{array}$$

Estimated comparative value per ton—\$35.00

To secure the estimated comparative value of a steamed bone guaranteed to contain 1.6 per cent. nitrogen and 27 per cent. of total phosphoric acid, multiply:

$$\begin{array}{rcl} \$5.50 \times 1.6 & = & \$ 8.80\text{—nitrogen} \\ 0.90 \times 27.0 & = & 24.30\text{—total } P_2O_5 \end{array}$$

Estimated comparative value per ton—\$33.10

To secure the estimated comparative value of a so-called Half and Half fertilizer, when same is composed of approximately equal parts of acid phosphate and untreated phosphate rock guaranteed to contain 10 per cent. available phosphoric acid and 12 per cent. insoluble phosphoric acid, multiply:

$$\$1.40 \times 10 = \$14.00 \text{ estimated comparative value per ton.}$$

To secure similar information for a high grade acid phosphate guaranteed to contain 16 per cent. soluble and reverted (available) phosphoric acid and 2.0 per cent. of insoluble phosphoric acid, multiply:

$$\$1.40 \times 16 = \$22.40 \text{ estimated comparative value per ton.}$$

REFUNDS

The payment of refunds does not wholly meet the requirements of the law and the State Chemist does not recognize such payments as nullifying the right of any one in the State to call cases of deficiency in all samples to the attention of the prosecuting attorney.

It often happens that manufacturers make shipments into Indiana in good faith, supposing same are up to guarantee in every particular and when analysis made by the State Chemist's Department shows the material to be deficient, the manufacturer often makes settlement to consumers on the basis suggested by the State Chemist. This settlement shows that the manufacturer is willing to protect his agents and customers and may indicate that he has no intention to defraud.

A few manufacturers, however, refuse to refund when their material is found deficient and the State Chemist is considering the advisability of classifying these manufacturers in a separate list in future bulletins of the State Chemist's Department.

Refunds in 1917 were made to agents and consumers, not only for fertilizer found deficient in nitrogen, potash and phosphoric acid, but in addition shortweight, poor mechanical condition and injurious effect on plants. Ten manufacturers representing 20 shipments refunded \$9,172.63 to agents and consumers of Indiana in 1917. Where refunds are made to agents they are required to prorate same among purchasers, to secure receipts and file same with the State Chemist, showing that proper distribution has been made.

SHIPMENTS WITHDRAWN FROM SALE

Darling & Company—BB 7007. This shipment was withdrawn from sale on April 10, by W. O. Henderson & Co., Ft. Wayne, on account of absence of labels and was certified on April 13 as being labeled with official labels No. 6258.

BB 7413. This shipment was withdrawn from sale on June 23 by Edw. F. Goeke Co., Evansville, on account of absence of labels and was certified on July 5 as being labeled with official labels No. 6258.

BB 7724. This shipment was withdrawn from sale on March 13 by Geo. Rupp, Milan, on account of deficiencies of 0.1 per cent. potash and 1.5 per cent. available phosphoric acid and will be used by the agent on his farm.

Empire Carbon Works—BB 7762. This shipment was withdrawn from sale on September 27 by Carl S. Culbertson, Vevay, on account of being misbranded and was certified on October 3 as being relabeled with official labels No. 6815.

Federal Chemical Company—BB 6781 and 6782. These shipments were withdrawn from sale on March 28 by Waldron Supply Co., Waldron, on account of disagreement between guarantee on sacks and official labels.

Jarecki Chemical Company—BB 6687. This shipment was withdrawn from sale on June 19 by J. Y. W. McClellan, Auburn, on account of 0.6 per cent. deficiency in available phosphoric acid.

Jones Fertilizer Company—BB 7630. This shipment was withdrawn from sale on September 19 on account of absence of labels, and was later certified as being labeled with official labels No. 5171.

Louisville Fertilizer Company—BB 7628. This shipment was withdrawn from sale on September 19 by August Arnholt, Columbus, on account of absence of labels and was later certified as being labeled with official labels No. 5987.

Swift & Company—BB 6750. This shipment was withdrawn from sale on March 24 by Jacob Finkle, Warren, on account of absence of labels and was certified on April 7 as being labeled with official labels No. 4871.

BB 6925, 6926, 6927, 6928 and 6929. These shipments were withdrawn from sale on April 4 by John A. Sheets, Kitchel, on account of absence of labels and were certified on April 17 as being labeled with official labels Nos. 6370, 5369, 5174, 5791 and 6199 respectively.

Virginia-Carolina Chemical Company—BB 7447. This shipment was withdrawn from sale on August 31 by F. C. Shera, West College Corner, on account of absence of labels and was certified on September 6 as being labeled with official labels No. 6500.

Shipments Returned

| Manufacturer | Inspection No. BB | Date | Amount returned tons | Agent |
|-------------------------------|----------------------|---------|----------------------------|-----------------------------------|
| Armour Fertilizer Works ----- | 7713 | Feb. 28 | ----- | -----Osgood Hdw. Co., Osgood |
| Federal Chemical Co. ----- | 6769 | June 11 | 1 | C. H. Billman & Sons, Shelbyville |
| Federal Chemical Co. ----- | 7106 | Nov. 30 | ----- | -----A. D. Toner, Delong |
| Federal Chemical Co. ----- | 7107 | Nov. 30 | ----- | -----A. D. Toner, Delong |
| Rasin Monumental Co. ----- | 6985 | Oct. 11 | 1.75 | -----King Grain Co., Wabash |

MANUFACTURERS' COMMENTS CONCERNING VIOLATIONS OF RULING 12A

Federal Chemical Company—BB 6769. Under date of June 8, Mr. Crady advised that this shipment, found in the following table, was purchased from one of the large bone producers, who was unable to account for the foreign material in this product. They advised the customer to return material to factory.

Tennessee Chemical Company—BB 7657. Mr. Stewart wrote, under date of February 1, that this shipment was purchased from Texas and he can in no way account for the presence of sand, unless from the fact that Fort Worth Raw Bone was made from country bones which had been collected from the plains of Texas and Mexico, and that whatever substances outside the raw bone went into the goods, must necessarily have been from the dirt on the bones. He is confident that no filler whatever was used.

Sold Under Names Indicating Use of Animal By-Products Only, but Containing Foreign Materials in Violation of Ruling 12A

| Manufacturer | Inspection No. BB | Foreign material present | Amount approx- imate pounds per ton | Agent |
|-------------------------------|----------------------|--------------------------------|---|------------------------------------|
| Federal Chemical Co. ----- | 6769 | Sand ----- | 62 | C. H. Billman & Sons, Shelbyville |
| Globe Fertilizer Co. ----- | 7500 | Sand ----- | 128 | Boonville Implement Co., Boonville |
| Hirsh, Stein & Co. ----- | 7653 | Sand ----- | 136 | -----Edwin Wedeking, Dale |
| Hirsh, Stein & Co. ----- | 7635 | Sand ----- | 144 | -----A. Graves Sons, Tell City |
| F. S. Royster Guano Co. ----- | 7377 | Sand ----- | 130 | -----J. C. Barrett, South Bend |
| Swift & Co. ----- | 7500 | Salt ----- | 36 | -----Abe Bossert, Brookville |
| | | Gypsum ----- | 66 | |
| | | Egg shells ----- | 66 | |
| Tennessee Chemical Co. ----- | 7657 | Sand ----- | 88 | -----Ben Bolte, Ferdinand |

SAMPLES SENT TO MANUFACTURERS—COMPARATIVE RESULTS BY MANUFACTURERS' CHEMISTS

Portions of 16 official samples were furnished to manufacturers who wished to review the analytical results secured by the State Chemist. On account of lack of space only a few are given herewith.

International Agricultural Corporation

| Inspection No. BB | 7090 | | |
|---|----------------|-----------------------------|------------------|
| | Guar- antee | Indiana State Chemist | Mfr's Chemist |
| Nitrogen, per cent. | 0.8 | 0.9 | 0.86 |
| Potash, soluble in water, per cent. | 1.0 | 1.4 | 1.28 |
| Available phosphoric acid, per cent. | 10.0 | 9.5 | 9.25 |
| Insoluble phosphoric acid, per cent. | 1.0 | 1.6 | ----- |
| Total phosphoric acid, per cent. | 11.0 | 11.1 | ----- |

Rasin-Monumental Co.

| Inspection No. BB | 6783 | | |
|---|----------------|-----------------------------|------------------|
| | Guar- antee | Indiana State Chemist | Mfr's Chemist |
| Nitrogen, per cent. | 0.8 | 1.2 | 1.13 |
| Available phosphoric acid, per cent. | 13.0 | 13.0 | 13.15 |
| Insoluble phosphoric acid, per cent. | 1.5 | 2.0 | 1.95 |
| Total phosphoric acid, per cent. | 14.5 | 15.0 | 15.1 |

Virginia-Carolina Chemical Co.

| Inspection No. BB | 6728 | | |
|---|----------------|-----------------------------|------------------|
| | Guar- antee | Indiana State Chemist | Mfr's Chemist |
| Nitrogen, per cent. | 0.8 | 1.1 | 0.97 |
| Potash, soluble in water, per cent. | 2.0 | 1.9 | 1.86 |
| Available phosphoric acid, per cent. | 8.0 | 8.8 | 8.79 |
| Insoluble phosphoric acid, per cent. | ----- | 2.0 | 2.03 |
| Total phosphoric acid, per cent. | ----- | 10.8 | 10.85 |

SPECIAL INFORMATION

The potash shortage is somewhat relieved, since about 126,577 short tons of an average of 26.4 per cent. pure potash (K_2O) were produced by manufacturers in the United States in 1917, this being over three times the amount available in 1916 and about 13 per cent. of the normal consumption of potash in the United States during the years immediately preceding the war. The average selling price of these potash materials at the point of shipment was \$426.00 a ton.

Indiana consumers are fortunate, in that brands of fertilizer containing 5.0 or 6.0 per cent. of potash was sold in certain sections of the State as opposed to the 3.0 per cent. potash fertilizer, which seems to be the limit in many of the eastern states. Experimental data show that only small areas of Indiana soil need a high per cent. of potash, and the mere fact that potash is short does not mean that every consumer must attempt to purchase potash. Consumers would do well to communicate with the Experiment Station and ascertain the requirements of their soils, and by adopting the most approved methods of cultivation, crop rotation and

fertilization, be in a position to fulfill the crop requirements of the country under war conditions.

The State Chemist estimates that 196,186 tons of fertilizer were sold in Indiana in 1917, being 63,562 tons in excess of 1916. Of this amount 42,609 tons were sold as acid phosphate with an average guarantee of 16 per cent. available P_2O_5 . The equivalent of 2325 tons of 16 per cent. acid phosphate was sold in mixtures as acid phosphate and potash; 1073 tons of 16 per cent. acid phosphate were used in so-called Half and Half; 50,865 tons were used in ammoniated acid phosphate; 40,948 tons were sold in complete fertilizer, making an approximate total of 137,820 tons of 16 per cent. acid phosphate sold in Indiana in 1917.

Consumers of the State were fortunate in that their orders for fertilizers were in the hands of agents and manufacturers in plenty of time to offset delay in shipment caused by labor conditions and congested traffic, so that very few instances have come to the attention of the State Chemist where consumers failed to receive their fertilizer in time for planting. No relief, however, as regards shortage in freight cars can be expected in 1918, and to offset delay in shipment and tie-up on freight lines, the consumer will do well to get his order in early, specifying immediate delivery. Manufacturers are expected to overload freight cars 10 per cent., which means that a 30-ton car must be loaded with 33 tons of fertilizer; a 40-ton car with 44 tons, etc. Dealers and consumers should bear this in mind when forwarding their orders to the manufacturer, thus enabling the shipping plant to fill the orders properly with a minimum of inconvenience. Wherever agents and consumers are so situated that they can handle fertilizer in bulk, they should secure quotations from the manufacturer for bulk shipments as the supply of burlap bags is very limited and manufacturers or agents should be in a position to quote prices \$4.00 or \$5.00 a ton less. Consumers may expect to receive their fertilizer in 1918 in 200 pound bags, as indications are that the Government will designate this sized container as a minimum. Wherever it is possible to handle fertilizer in bulk shipments, it should be done, in order to conserve sacks and to effect a saving in the cost of the fertilizer.

EXPLANATION OF TABLES

In considering the results and summaries of inspection, it should be noted that in the case of deficient samples, manufacturers were given 10 days' advance notice and opportunity to request a portion of sample and time for review of the results by their chemists.

Table I summarizes the results of the inspection of samples for the year 1917, according to composition.

Table II summarizes the results of the inspection of samples secured in the spring, 1917.

Table III summarizes the results of the inspection of samples secured in the fall, 1917.

Table IV summarizes the results of the inspection of samples for the year 1917.

In Table IV manufacturers having 20 per cent. or more of brands inspected "Not within 10 per cent. of Value of Guarantee" are given in bold type.

Table V summarizes the results of the inspection of samples for the year 1917 by counties.

In Tables II, III, IV and V an extra column showing the number of samples having \$1.00 or more excess comparative value due to the presence of excess insoluble phosphoric acid, has been made necessary by the increasing use of untreated rock phosphate as a makeweight. In reaching conclusions regarding comparative values as shown in the summaries, this fact should be kept in mind and the analytical results in Table VI consulted.

Table VI contains the details of the inspection of samples from which Tables I, II, III, IV and V are compiled together with the name of the manufacturer, brand, guarantee and found composition and the names and addresses of persons from whom samples were obtained.

In Table VI ingredients guaranteed 1.0 per cent. or less showing a deficiency of 20 per cent. of the total guarantee and ingredients guaranteed over 1.0 per cent. showing a deficiency of 0.3 per cent. are printed in bold type. If deficiencies are shown by all the ingredients, such results also appear in bold type. Total phosphoric acid deficiencies are only so marked in fertilizers in which the available phosphoric acid is not guaranteed.

In comparing the standing of manufacturers, Tables II, III and IV should always be used in connection with Table VI.

Table VII contains results showing the mechanical condition of rock phosphate samples. All siftings reported in this table are made by the dry method.

Table VIII has listed the brands of fertilizer certified by manufacturers as being on sale in 1918. The registrations being permanent, any registered brand may be legally sold at any time without regard to its publication in this list, provided a correct State Chemist's label is attached to packages and furnished for bulk shipments of each 200 pounds or fraction.

ATTENTION—FERTILIZER PURCHASERS

To cooperate with the Experiment Station and the State Chemist to the best advantage, observe the following: study the Experiment Station bulletins as to plant food requirements and amounts of fertilizer advocated for your type of soil. Do not accept any fertilizer unless State Chemist's labels are furnished as required by law. (See reproduction, page 6).

Consult Tables II, III, IV and VI and purchase from companies which maintain guarantees and do not have brands in the "Not within 10 per cent. of value" or "20 per cent. of value" columns, and which do not have frequent bold faced figures in the inspection table.

Note that prosecutions for deficiencies are not a part of the official duties of the State Chemist. The facts are given in the fertilizer bulletins (which are sent free by the Experiment Station to any citizen of the State on request), and it is for purchasers to decide whether they will purchase of manufacturers whose inspection samples are below the legal guarantee in composition or show carelessness in mixing by having a large number in the "20 per cent." column, or cooperate with this department and purchase from manufacturers whose inspection results show guarantee uniformly maintained.

Having decided on the brands of fertilizer desired, place your order early. Inasmuch as the Government has included fertilizers on the priority order, cooperate by unloading the cars promptly upon arrival.

TABLE II.—Summary of Results of Inspection of Samples Secured in the Spring, 1917

| Manufacturer | Number of samples reported | Number equal to guarantee in every particular | Number equal in value to guarantee | Number within 10 per cent. of value of guarantee | Number not within 10 per cent. of value of guarantee | Number with one or more ingredients 10 per cent. below guarantee | Number with one or more ingredients 20 per cent. below guarantee | Number with one or more ingredients 30 per cent. below guarantee | Number with one or more ingredients 50 per cent. below guarantee | Number less than \$1.00 below value of guarantee per ton | Number \$1.00 to \$2.00 below value of guarantee per ton | Number \$2.00 to \$3.00 below value of guarantee per ton | Number \$3.00 to \$4.00 below value of guarantee per ton | Number \$4.00 to \$5.00 below value of guarantee per ton | Number more than \$5.00 below value of guarantee per ton | Number \$1.00 or more above value of guarantee per ton | Number with \$1.00 or more excess insoluble P ₂ O ₅ |
|--|----------------------------|---|------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|---|
| American Agricultural Chemical Co., The, | | | | | | | | | | | | | | | | | |
| Bowker Fertilizer Works | 20 | 18 | 18 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 16 | 0 |
| American Fertilizer Works | | | | | | | | | | | | | | | | | |
| American Agricultural Chemical Co., The, | 28 | 25 | 28 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 |
| Petrol Sales Department | | | | | | | | | | | | | | | | | |
| American Agricultural Chemical Co., The, | 20 | 20 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 |
| Michigan Carbon Works | | | | | | | | | | | | | | | | | |
| American Agricultural Chemical Co., The, | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| M. E. Wheeler & Co., Branch | 30 | 16 | 25 | 2 | 3 | 7 | 3 | 1 | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 19 | 0 |
| Armour Fertilizer Works | | | | | | | | | | | | | | | | | |
| Bausback & Sons, Robert | 13 | 8 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 |
| Buhner Fertilizer Co. | 5 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Cincinnati Phosphate Co. | 17 | 13 | 17 | 2 | 0 | 3 | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 2 |
| Cincinnati Fertilizer Co. | 4 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 16 | 0 |
| Darling & Company | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| D. & K. Fertilizer Co. | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Eckart Packing Co., Fred | | | | | | | | | | | | | | | | | |
| Empire Carbon Works, Subsidiary of the American Agricultural Chemical Co. | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Empire Guano Co., New Albany Sales Department. | 7 | 4 | 3 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| Evansville Packing Co. | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Farmers Fertilizer Company, The, Columbus | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Farmers Fertilizer Company, The, Indianapolis | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Farmers Ground Rock Phosphate Co. | 1 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Federal Chemical Co. | 33 | 18 | 30 | 3 | 0 | 10 | 3 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 25 | 0 |
| Fuhrer Tobacco & Snuff Co. | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fox Chemical Co. | 6 | 4 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Globe Fertilizer Co. | 18 | 9 | 16 | 1 | 1 | 3 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 15 | 3 |
| Goodrich, Wm. J. | 2 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Groves Fertilizer Works (Joslin-Schmidt Co.) | 18 | 9 | 16 | 1 | 1 | 3 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 15 | 14 |
| Hess & Bro., Inc., S. M., Subsidiary of The American Agricultural Chemical Co. | 2 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Hirsh, Stein & Co. | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| Hopkins Fertilizer Co. | 19 | 13 | 16 | 3 | 0 | 6 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 14 | 2 |
| Hubbell Fertilizer Co., L. W. | 10 | 4 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Independent Packers Fertilizer Co. | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Indianapolis Rendering Co. | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | 9 | 7 | 9 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |

TABLE III.—Summary of Results of Inspection of Samples Secured in the Fall, 1917

| Manufacturer | Number of samples reported | Number equal to guarantee in every particular | Number equal in value to guarantee | Number within 10 per cent. of value of guarantee | Number not within 10 per cent. of value of guarantee | Number with one or more ingredients 10 per cent. below guarantee | Number with one or more ingredients 20 per cent. below guarantee | Number with one or more ingredients 30 per cent. below guarantee | Number with one or more ingredients 50 per cent. below guarantee | Number less than \$1.00 below value of guarantee per ton | Number \$1.00 to \$2.00 below value of guarantee per ton | Number \$2.00 to \$3.00 below value of guarantee per ton | Number \$3.00 to \$4.00 below value of guarantee per ton | Number \$4.00 to \$5.00 below value of guarantee per ton | Number more than \$5.00 below value of guarantee per ton | Number \$1.00 or more above value of guarantee per ton | Number with \$1.00 or more of value due to excess insoluble P ₂ O ₅ |
|--|----------------------------|---|------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|---|
| American Agricultural Chemical Co., The, Bowker Fertilizer Works | 15 | 14 | 15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 |
| American Agricultural Chemical Co., The, Detroit Sales Department | 8 | 5 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 |
| American Agricultural Chemical Co., The, Great Eastern Fertilizer Branch | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| American Agricultural Chemical Co., The, Michigan Carbon Works | 10 | 10 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 |
| American Agricultural Chemical Co., The, Western Union Chemical Co., Branch | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| American Agricultural Chemical Co., The, M. E. Wheeler & Co., Branch | 6 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| American Basic Phosphate Co., The | 2 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Armour Fertilizer Works | 30 | 18 | 27 | 3 | 0 | 4 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 23 | 0 |
| Ballard Packing Co. | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Buhner Fertilizer Co. | 4 | 3 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Chicago Raw Products Co. | 4 | 3 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| Cincinnati Phosphate Co. | 6 | 4 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| Cleveland Fertilizer Co. | 5 | 2 | 4 | 1 | 0 | 2 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| Darling & Company | 8 | 7 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 1 |
| D. & K. Fertilizer Co. | 4 | 2 | 4 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| Empire Carbon Works, Subsidiary of The American Agricultural Chemical Co. | 7 | 4 | 6 | 1 | 0 | 2 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| Empire Guano Co., New Albany Sales Department | 9 | 6 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 |
| Evansville Packing Co. | 5 | 3 | 4 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Farmers Fertilizer Co., Indianapolis | 5 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| Federal Chemical Co. | 23 | 14 | 21 | 1 | 1 | 5 | 4 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 14 | 13 |
| Fox Chemical Co. | 9 | 7 | 8 | 1 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 6 |
| Globe Fertilizer Co. | 14 | 8 | 13 | 1 | 0 | 4 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12 | 10 |
| Goldrich Fertilizer Co. | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Groves Fertilizer Works (Joslin-Schmidt Co.) | 6 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| Hess & Bro., Inc., S. M. Subsidiary of The American Agricultural Chemical Co. | 5 | 3 | 4 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| Hirsh, Stein & Co. | 12 | 6 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 |
| Hopkins Fertilizer Co. | 6 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| Independent Packers Fertilizer Co., The | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

TABLE IV.—Summary of Results of Inspection of Samples Secured in 1917

| Manufacturer | Number of samples reported | Number equal to guarantee in every particular | Number equal in value to guarantee | Number within 10 per cent. of value of guarantee | Number not within 10 per cent. of value of guarantee | Number with one or more ingredients 10 per cent. below guarantee | Number with one or more ingredients 20 per cent. below guarantee | Number with one or more ingredients 50 per cent. below guarantee | Number with one or more ingredients 50 per cent. below guarantee | Number less than \$1.00 below value of guarantee per ton | Number \$1.00 to \$2.00 below value of guarantee per ton | Number \$2.00 to \$3.00 below value of guarantee per ton | Number \$3.00 to \$4.00 below value of guarantee per ton | Number \$4.00 to \$5.00 below value of guarantee per ton | Number more than \$5.00 below value of guarantee per ton | Number \$1.00 or more above value of guarantee per ton | Number with \$1.00 or more of value due to excess insoluble P ₂ O ₅ |
|---|----------------------------|---|------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|---|
| American Agricultural Chemical Co., The, | 35 | 32 | 33 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 29 | 0 |
| Bowker Fertilizer Works | | | | | | | | | | | | | | | | | |
| American Agricultural Chemical Co., The, | 33 | 30 | 33 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 1 |
| Detroit Sales Department | | | | | | | | | | | | | | | | | |
| American Agricultural Chemical Co., The, | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Great Eastern Fertilizer Branch | | | | | | | | | | | | | | | | | |
| American Agricultural Chemical Co., The, | 30 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 0 |
| Michigan Carbon Works | | | | | | | | | | | | | | | | | |
| American Agricultural Chemical Co., The, | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Western Union Chemical Co., Branch | | | | | | | | | | | | | | | | | |
| American Agricultural Chemical Co., The, | 9 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 |
| M. E. Wheeler & Co., Branch | | | | | | | | | | | | | | | | | |
| American Basic Phosphate Co. | 2 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Amour Fertilizer Works | 60 | 34 | 52 | 5 | 3 | 11 | 4 | 2 | 0 | 4 | 0 | 0 | 1 | 2 | 1 | 42 | 0 |
| Ballard Packing Co. | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Bausback & Sons, Robert | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Brunner Fertilizer Co. | 17 | 11 | 17 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Chicago Raw Products Co. | 4 | 3 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| Cincinnati Phosphate Co., The | 11 | 9 | 11 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 |
| Clendenin Fertilizer Co. | 10 | 4 | 7 | 3 | 0 | 5 | 4 | 2 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 2 |
| Darling & Co. | 25 | 20 | 24 | 1 | 0 | 3 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 22 | 1 |
| D. & K. Fertilizer Co. | 8 | 2 | 6 | 2 | 0 | 4 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 4 | 1 |
| Lehart Packing Co., Fred | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Empire Carbon Works, Subsidiary of The American Agricultural Chemical Co. | | | | | | | | | | | | | | | | | |
| Empire Guano Co., New Albany Sales Department | 10 | 7 | 9 | 1 | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 |
| Evansville Packing Co., The | 16 | 6 | 13 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 10 | 1 |
| Farmers Fertilizer Co., The | 7 | 5 | 6 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Farmers Fertilizer Co., The, Columbus, Ohio | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Farmers Fertilizer Co., Indianapolis, Ind. | 8 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 |
| Farmers Ground Rock Phosphate Co. | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Federal Chemical Co. | 53 | 32 | 51 | 4 | 1 | 15 | 7 | 1 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 39 | 38 |
| Fuhrer Tobacco & Snuff Co. | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Fox Chemical Co. | 15 | 11 | 14 | 1 | 0 | 4 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 13 | 9 |
| Globe Fertilizer Co. | 32 | 17 | 29 | 2 | 1 | 7 | 6 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 27 | 24 |
| Goldreich Fertilizer Co. | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Goodrich, W. J. | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917

| Label and names of persons from whom samples were secured | Official No. | Inspection No. B3 | Sample taken at | Water soluble in nitrates and ammonia salts, per cent. | Nitrogen, N | | | | Potash, K ₂ O, soluble in water, per cent. | Phosphoric acid, P ₂ O ₅ | | |
|--|-------------------------------------|-------------------|-----------------|--|--|--|---|------------------|---|--|----------------------|------------------|
| | | | | | Active water insoluble or organic, per cent. | Inactive water insoluble or organic, per cent. | Total water soluble and active, per cent. | Total, per cent. | | Soluble and reverted, per cent. | Insoluble, per cent. | Total, per cent. |
| American Agricultural Chemical Company, The, Bowler Fertilizer Works, Cincinnati, Ohio. | | | | | | | | | | | | |
| | Bowler's 16% Acid Phosphate | | | | | | | | | | | |
| | *A. F. Brockmeier | 5316 | 6813 | Greensburg | guaranteed | | | | | | | |
| | *Davis & Sibley | 5316 | 7057 | Chrisey | found | | | | | | | |
| | *W. C. Jamison | 5316 | 7072 | Sullivan | found | | | | | | | |
| | *Taylor Fouts | 5316 | 7145 | Camden | found | | | | | | | |
| | W. A. Wilkey | 5316 | 7505 | Sullivan | found | | | | | | | |
| | A. F. Brockmeier | 5316 | 7538 | Greensburg | found | | | | | | | |
| | Harris Bros. | 5316 | 7759 | Rising Sun | found | | | | | | | |
| | John Berns | 5316 | 8013 | Linton | found | | | | | | | |
| | Bowler's Harvest Bone Phosphate | | | | | | | | | | | |
| | *Ed. Gerard | 5764 | 6780 | St. Paul | found | 0.28 | 0.04 | 0.39 | 0.29 | 0.71 | 1.0 | 8.0 |
| | *Frank Anderson | 5764 | 7131 | Petersburg | found | 0.15 | 0.26 | 0.32 | 0.27 | 0.73 | 1.0 | 8.7 |
| | C. S. Culbertson | 5764 | 7764 | Vevay | found | 0.09 | 0.40 | 0.29 | 0.32 | 0.78 | 1.1 | 8.7 |
| | Bowler's Soluble Phosphate | | | | | | | | | | | |
| | *A. J. Apple | 5765 | 6854 | Paoli | found | | | | | | | |
| | *John H. Gish | 5765 | 7144 | Lincoln | found | | | | | | | |
| | Bowler's Special Wheat Grower | | | | | | | | | | | |
| | *Frank Hammett | 6201 | 6921 | College Corner | found | 0.21 | 0.12 | 0.41 | 0.26 | 0.74 | 1.0 | 10.0 |
| | H. J. Laswell | 6201 | 7143 | Lincoln | found | 0.15 | 0.55 | 0.19 | 0.18 | 0.92 | 1.1 | 11.2 |
| | Bowler's High Grade Fertilizer 1916 | | | | | | | | | | | |
| | *Carl S. Culbertson | 6205 | 7643 | Osgood | found | 0.09 | 0.23 | 0.40 | 0.28 | 0.72 | 1.0 | 9.9 |
| | Bowler's General Crop | | | | | | | | | | | |
| | P. E. Jackson | 6206 | 7349 | Vevay | found | 1.12 | 0.67 | 0.56 | 0.25 | 2.35 | 2.6 | 1.1 |
| | Bowler's Special 1916 | | | | | | | | | | | |
| | *P. E. Jackson | 6207 | 7741 | Lawrenceburg | found | 0.23 | 0.49 | 0.74 | 0.44 | 1.46 | 1.9 | 1.1 |
| Bowler's 2-12 Ammoniated Acid Phosphate | | | | | | | | | | | | |
| *A. F. Brockmeier | 6209 | 7352 | Lawrenceburg | found | 0.89 | 0.44 | 0.61 | 0.26 | 1.94 | 2.2 | 1.1 | |
| *H. C. Burton | 6209 | 6812 | Greensburg | found | 0.65 | 0.48 | 0.43 | 0.24 | 1.56 | 1.8 | 1.6 | |
| B. B. Evans | 6209 | 6847 | Glass Rock | found | 0.18 | 0.80 | 0.56 | 0.26 | 0.54 | 1.8 | 1.2 | |
| H. J. Laswell | 6209 | 7504 | Carlisle | found | 0.42 | 0.81 | 0.49 | 0.28 | 1.72 | 2.0 | 1.6 | |
| J. W. Hogan | 6209 | 7642 | Osgood | found | 0.65 | 0.36 | 0.54 | 0.25 | 1.55 | 1.8 | 1.3 | |
| Bowler's 2-10 Ammoniated Acid Phosphate | | | | | | | | | | | | |
| *Ed. Gerard | 6270 | 7693 | Winslow | found | 0.20 | 1.13 | 0.37 | 0.20 | 1.70 | 1.9 | 1.2 | |
| *Alex. Rogers | 6270 | 6787 | St. Paul | found | 0.10 | 0.53 | 0.75 | 0.42 | 1.38 | 1.8 | 1.0 | |
| Home Hardware Co. | 6270 | 6845 | French Lick | found | 0.14 | 0.70 | 0.61 | 0.35 | 1.45 | 1.8 | 0.9 | |
| Bowler's 1-10 Ammoniated Acid Phosphate | | | | | | | | | | | | |
| *C. M. Montgomery | 6271 | 7812 | Batesville | found | 0.27 | 0.72 | 0.50 | 0.41 | 1.49 | 1.9 | 1.2 | |
| Sawdon & Schooley | 6271 | 7249 | Lexington | found | 0.15 | 0.25 | 0.38 | 0.32 | 0.78 | 1.1 | 1.1 | |
| W. T. Wright | 6271 | 7740 | Arora | found | 0.12 | 0.58 | 0.22 | 0.08 | 0.92 | 1.0 | 1.6 | |
| | 6271 | 7857 | Paoli | found | 0.11 | 0.43 | 0.27 | 0.19 | 0.81 | 1.0 | 1.1 | |

| | | | | | | | | | | | |
|---|------|--------------|------------|------|------|------|------|------|-----|------|------|
| Bowker's No. 1 Raw Bone | 6723 | Huntingburg | guaranteed | 0.03 | 0.50 | 3.15 | 0.42 | 3.68 | 4.1 | 3.2 | 20.0 |
| Louis Katterbury | 6723 | Huntingburg | found | --- | --- | --- | --- | --- | --- | --- | 23.5 |
| Bowker's Acid Phosphate with Potash | 6729 | Lincoln | guaranteed | --- | --- | --- | --- | --- | --- | 1.0 | 12.0 |
| *Oscar Heins | 6729 | Lincoln | found | --- | --- | --- | --- | --- | --- | 0.8 | 11.9 |
| Bowker's Harvest Queen | 6763 | Paoli | guaranteed | 0.18 | 0.31 | 0.31 | 0.20 | 0.80 | 0.8 | 2.0 | 8.0 |
| *A. J. Apple | 6763 | Paoli | found | --- | --- | --- | --- | --- | --- | 2.0 | 9.2 |
| Bowker's Ground Bone | 6765 | Vevay | guaranteed | 0.15 | 0.39 | 1.01 | 0.55 | 1.35 | 1.6 | 1.0 | 1.3 |
| *Carl S. Culbertson | 6765 | Vevay | found | 0.15 | 0.39 | 1.01 | 0.55 | 1.35 | 2.1 | 1.6 | 27.0 |
| *A. F. Brockmeier | 6765 | Greensburg | found | 0.14 | 0.35 | 1.18 | 0.23 | 1.67 | 1.9 | 2.1 | 29.5 |
| American Agricultural Chemical Company, The, | | | | | | | | | | | 30.6 |
| Detroit Sales Department, Detroit, Mich. | | | | | | | | | | | |
| North Western Horse Shoe Brand 46% Phosphate. | 5931 | Rensselaer | guaranteed | --- | --- | --- | --- | --- | --- | 16.0 | 1.0 |
| *A. A. Hoover | 5931 | Decker | found | --- | --- | --- | --- | --- | --- | 16.3 | 2.0 |
| *S. A. Jordan & Louis Schultz | 5931 | Decker | found | --- | --- | --- | --- | --- | --- | 16.0 | 2.1 |
| North Western Horse Shoe Brand Acidulated Bone | 5934 | South Bend | guaranteed | --- | --- | --- | --- | --- | --- | 1.0 | 2.0 |
| Phosphate and Potash | 5934 | Greencastle | found | 0.13 | 0.18 | 0.25 | 0.24 | 0.56 | 0.8 | 1.0 | 10.2 |
| *J. W. McFarland | 5934 | Greencastle | found | 0.10 | 0.32 | 0.32 | 0.36 | 0.74 | 1.1 | 1.0 | 10.8 |
| Roy Hills | 6213 | Churubusco | guaranteed | 0.09 | 0.70 | 0.50 | 0.41 | 1.29 | 1.6 | 1.0 | 2.0 |
| Amo-Phos Fertilizer | 6213 | Kewanna | found | 0.12 | 0.73 | 0.40 | 0.45 | 1.25 | 1.7 | 1.0 | 2.6 |
| *Joseph E. Luckey | 6213 | Kewanna | found | 0.72 | 0.20 | 0.63 | 0.12 | 1.58 | 1.7 | 1.0 | 2.5 |
| *Jordan & Baird | 6213 | North Vernon | found | --- | --- | --- | --- | --- | --- | 12.7 | 0.7 |
| Geo. M. Behr | 6213 | North Vernon | found | --- | --- | --- | --- | --- | --- | 12.8 | 0.7 |
| North Western Horse Shoe Brand Dissolved Ammoniated | 6216 | South Bend | guaranteed | --- | --- | --- | --- | --- | --- | 1.6 | 2.0 |
| Bone Phosphate | 6216 | South Bend | found | 0.18 | 0.80 | 0.49 | 0.33 | 1.47 | 1.8 | 1.0 | 3.1 |
| *J. W. McFarland | 6216 | Bath | found | 0.15 | 0.80 | 0.36 | 0.39 | 1.31 | 1.7 | 1.0 | 2.9 |
| D. W. Harbine | 6216 | Bath | found | --- | --- | --- | --- | --- | --- | 12.4 | 3.1 |
| North Western Horse Shoe Brand Potash Manure | 6325 | Tell City | guaranteed | 0.17 | 0.47 | 0.25 | 0.21 | 0.89 | 0.8 | 1.0 | 1.0 |
| *Fred Werner | 6325 | Deputy | found | 0.13 | 0.46 | 0.24 | 0.17 | 0.83 | 1.0 | 1.0 | 2.3 |
| *J. C. Dixon | 6325 | Deputy | found | --- | --- | --- | --- | --- | --- | 1.1 | 9.2 |
| North Western Horse Shoe Brand Corn and | 6326 | Montgomery | guaranteed | 0.23 | 0.72 | 0.54 | 0.31 | 12.6 | 1.6 | 1.0 | 1.0 |
| Wheat Grower | 6326 | Montgomery | found | --- | --- | --- | --- | --- | --- | 1.8 | 1.8 |
| *Geo. Daily | 6326 | Montgomery | found | --- | --- | --- | --- | --- | --- | 1.1 | 8.2 |
| North Western Horse Shoe Brand Garden City | 6327 | Decker | guaranteed | 0.21 | 0.88 | 0.61 | 0.40 | 1.70 | 2.0 | 1.0 | 1.0 |
| Superphosphate 1916 | 6327 | Decker | found | --- | --- | --- | --- | --- | --- | 1.2 | 8.6 |
| *S. A. Jordan & Louis Schultz | 6327 | Decker | found | --- | --- | --- | --- | --- | --- | 8.6 | 2.9 |
| North Western Horse Shoe Brand National Bone | 6328 | New Albany | guaranteed | 0.36 | 0.87 | 0.54 | 0.43 | 1.77 | 2.0 | 1.0 | 1.0 |
| Phosphate Dust 1916 | 6328 | New Albany | found | --- | --- | --- | --- | --- | --- | 2.2 | 1.1 |
| *Louis Thorn & Sons | 6328 | New Albany | found | --- | --- | --- | --- | --- | --- | 1.1 | 8.5 |
| North Western Horse Shoe Brand F. and P. | 6330 | Medora | guaranteed | 0.13 | 0.39 | 0.28 | 0.30 | 0.80 | 0.8 | 1.0 | 1.0 |
| Fertilizer | 6330 | Medora | found | 0.04 | 0.31 | 0.36 | 0.19 | 0.71 | 0.9 | 1.1 | 1.1 |
| *Alex. Carr | 6330 | Greencastle | found | --- | --- | --- | --- | --- | --- | 11.6 | 1.2 |
| Roy Hills | 6330 | Greencastle | found | --- | --- | --- | --- | --- | --- | 11.6 | 1.2 |
| North Western Horse Shoe Brand Corn and | 6331 | Scottsberg | guaranteed | 0.67 | 0.64 | 0.67 | 0.42 | 1.98 | 2.0 | 8.0 | 1.0 |
| Wheat Grower No. 2 | 6331 | Scottsberg | found | 0.57 | 0.80 | 0.72 | 0.45 | 2.05 | 2.5 | 8.5 | 2.2 |
| *Geo. Daily | 6331 | Scottsberg | found | --- | --- | --- | --- | --- | --- | 8.0 | 4.0 |
| Scottsberg Milling Co. | 6331 | Scottsberg | found | --- | --- | --- | --- | --- | --- | 10.0 | 1.0 |
| Packers Boar's Head Brand New Compound | 6337 | Cayuga | guaranteed | 0.11 | 0.21 | 0.50 | 0.28 | 0.82 | 0.8 | 1.1 | 1.1 |
| *J. M. Morgan Lumber Co. | 6337 | Cayuga | found | 0.07 | 0.33 | 0.39 | 0.31 | 0.79 | 1.1 | 1.0 | 1.0 |
| *S. P. Jennings Sons | 6337 | New Castle | guaranteed | --- | --- | --- | --- | --- | --- | 16.0 | 1.0 |
| Bradley's 16% Acid Phosphate | 6352 | Orleans | found | --- | --- | --- | --- | --- | --- | 16.0 | 1.0 |
| *Roscoe Jenkins | 6352 | Orleans | found | --- | --- | --- | --- | --- | --- | 16.8 | 1.9 |

* Sample received in the spring

1 Purchased from W. A. Wilkey

2 Purchased from John H. Gish

3 Purchased from Culbertson Bros., Vevay

4 Refund (see page 30)

5 Purchased from John H. Gish. Refund.

6 Purchased from Sherman Noblet, Paoli

See page 30

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No., BB | Sample taken at | | Nitrogen, N | | | | | | Potash, K ₂ O, soluble in water, per cent. | | | Phosphoric acid, P ₂ O ₅ | | |
|--|--------------|--------------------|-----------------|------------------|--|----------------------------------|--------------------------------------|---|---|------------------|---|---------------------------------|----------------------|--|---------------------------------|----------------------|
| | | | | | Water soluble in nitrates and ammonia salts, per cent. | Water soluble organic, per cent. | Insoluble or active water, per cent. | Inactive water, insoluble or organic, per cent. | Total water soluble and active, per cent. | Total, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted, per cent. | Insoluble, per cent. | Total, per cent. | Soluble and reverted, per cent. | Insoluble, per cent. |
| American Agricultural Chemical Company, The, Detroit Sales Department, Detroit, Mich. | | | | | | | | | | | | | | | | |
| Bradley's B. D. Sea Fowl Guano No. 2..... | 6357 | 7242 | New Albany | guaranteed found | 0.24 | 0.89 | 0.65 | 0.42 | 1.78 | 2.0 | --- | 8.0 | 1.0 | --- | 8.0 | --- |
| *H. C. Bornwasser Implement Co. | 6357 | 7242 | New Albany | guaranteed | 0.18 | 0.56 | 0.32 | 0.14 | 1.00 | 0.8 | 1.0 | 8.0 | 3.0 | --- | 8.0 | --- |
| New York State Special 1916 | 6353 | 6389 | Tell City | guaranteed | 0.18 | 0.56 | 0.32 | 0.14 | 1.00 | 0.8 | 1.0 | 8.0 | 2.5 | --- | 8.0 | --- |
| *John Lueke & Marion Fite | 6354 | 7129 | Kewanna | found | 0.48 | 0.01 | 0.29 | 0.32 | 0.78 | 1.1 | --- | 10.0 | 1.0 | --- | 10.0 | --- |
| 1 and 10 Compound | 6354 | 7613 | North Vernon | found | 0.03 | 0.05 | 0.70 | 0.22 | 0.78 | 1.0 | --- | 10.7 | 2.3 | --- | 10.7 | --- |
| *Jordan & Baird | 6354 | 7613 | North Vernon | found | 0.03 | 0.05 | 0.70 | 0.22 | 0.78 | 1.0 | --- | 10.7 | 2.2 | --- | 10.7 | --- |
| Geo. M. Beir | 6354 | 7613 | North Vernon | found | 0.03 | 0.05 | 0.70 | 0.22 | 0.78 | 1.0 | --- | 10.7 | 2.2 | --- | 10.7 | --- |
| Crown Phosphate and Potash | 6735 | 7247 | Lexington | guaranteed | --- | --- | --- | --- | --- | --- | --- | 1.0 | 12.0 | 1.0 | 1.0 | 12.0 |
| *T. F. Benham | 6735 | 7247 | Lexington | guaranteed | --- | --- | --- | --- | --- | --- | --- | 1.0 | 12.0 | 1.0 | 1.0 | 12.0 |
| North Western Horse Shoe Brand XXX Fertilizer..... | 6766 | 7693 | Decker | guaranteed | --- | --- | --- | --- | --- | --- | --- | 1.0 | 12.0 | 1.0 | 1.0 | 12.0 |
| *E. E. Johnson | 6766 | 7263 | Deputy | found | --- | --- | --- | --- | --- | --- | --- | 1.5 | 12.1 | 2.0 | 1.5 | 12.1 |
| *J. C. Dixon | 6766 | 7492 | Greencastle | found | --- | --- | --- | --- | --- | --- | --- | 0.9 | 12.6 | 0.5 | 0.9 | 12.6 |
| Roy Hillis | 6766 | 7492 | Greencastle | found | --- | --- | --- | --- | --- | --- | --- | 0.9 | 12.6 | 0.5 | 0.9 | 12.6 |
| North Western Horse Shoe Brand 2 Potash Fertilizer..... | 6767 | 6650 | Rensselaer | guaranteed | 0.15 | 0.52 | 0.13 | 0.20 | 0.80 | 0.8 | 2.0 | 8.0 | 1.0 | --- | 8.0 | 1.0 |
| *A. A. Hoover | 6767 | 6650 | Rensselaer | found | 0.15 | 0.52 | 0.13 | 0.20 | 0.80 | 0.8 | 2.0 | 8.0 | 1.0 | --- | 8.0 | 1.0 |
| Packers Boars Head Brand New Compound and Potash Fertilizer | 6770 | 6679 | Cayuga | guaranteed | 0.18 | 0.31 | 0.34 | 0.27 | 0.83 | 1.6 | 2.0 | 8.0 | 1.0 | --- | 8.0 | 1.0 |
| *J. M. Morgan Lumber Co. 7 | 6770 | 6679 | Cayuga | found | 0.18 | 0.31 | 0.34 | 0.27 | 0.83 | 1.6 | 2.0 | 8.0 | 1.0 | --- | 8.0 | 1.0 |
| Packers Boars Head Brand Success Fertilizer | 6772 | 6672 | Cayuga | guaranteed | 0.13 | 0.85 | 0.61 | 0.21 | 1.59 | 1.8 | --- | 12.8 | 2.6 | --- | 12.8 | --- |
| *J. M. Morgan Lumber Co. | 6772 | 6979 | New Castle | found | 0.35 | 0.58 | 0.51 | 0.35 | 1.45 | 1.8 | --- | 13.0 | 1.1 | --- | 13.0 | --- |
| *S. P. Jennings Sons | 6772 | 7728 | New Augusta | found | 0.03 | 0.16 | 1.16 | 0.55 | 1.35 | 1.9 | --- | 13.0 | 1.3 | --- | 13.0 | --- |
| H. J. Fink | 6772 | 7728 | New Augusta | found | 0.03 | 0.16 | 1.16 | 0.55 | 1.35 | 1.9 | --- | 13.0 | 1.3 | --- | 13.0 | --- |
| Favorite Potash Fertilizer | 6773 | 6733 | Churubusco | guaranteed | 0.21 | 0.45 | 0.15 | 0.19 | 0.81 | 0.8 | 2.0 | 8.0 | 1.0 | --- | 8.0 | 1.0 |
| *Joseph E. Luckey | 6773 | 6733 | Churubusco | found | 0.21 | 0.45 | 0.15 | 0.19 | 0.81 | 0.8 | 2.0 | 8.0 | 1.0 | --- | 8.0 | 1.0 |
| Complete 2 Potash Fertilizer | 6774 | 7248 | Lexington | guaranteed | 0.63 | 0.33 | 0.61 | 0.33 | 1.57 | 1.6 | 2.0 | 8.0 | 1.0 | --- | 8.0 | 1.0 |
| *T. F. Benham | 6774 | 7248 | Lexington | found | 0.63 | 0.33 | 0.61 | 0.33 | 1.57 | 1.9 | 2.4 | 8.2 | 1.5 | --- | 8.2 | 1.5 |
| American Agricultural Chemical Company, The, Great Eastern Fertilizer Branch, Rutland, Vt. | | | | | | | | | | | | | | | | |
| Great Eastern General 1916 | 6537 | 7810 | Weisburg | guaranteed | 0.20 | 0.01 | 0.34 | 0.35 | 0.55 | 0.8 | 1.0 | 8.0 | 1.0 | --- | 8.0 | 1.0 |
| John G. Easley | 6537 | 7810 | Weisburg | found | 0.20 | 0.01 | 0.34 | 0.35 | 0.55 | 0.9 | 1.1 | 8.9 | 0.9 | --- | 8.9 | 0.9 |
| American Agricultural Chemical Company, The, Michigan Carbon Works, Detroit, Mich. | | | | | | | | | | | | | | | | |
| Red Line Complete Manure | 4411 | 7286 | North Madison | guaranteed | --- | --- | --- | --- | --- | 0.8 | 1.0 | 7.0 | 1.0 | --- | 7.0 | 1.0 |
| *North Madison Coal Co. | 4411 | 7286 | North Madison | found | --- | --- | --- | --- | --- | 1.1 | 1.0 | 8.1 | 2.2 | --- | 8.1 | 2.2 |
| Red Line Phosphate | 4413 | 6848 | Paoli | guaranteed | 0.13 | 0.37 | 0.25 | 0.35 | 0.75 | 1.1 | --- | 14.0 | 2.0 | --- | 14.0 | --- |
| *M. L. Farlow | 4413 | 6848 | Paoli | found | 0.13 | 0.37 | 0.25 | 0.35 | 0.75 | 1.1 | --- | 15.0 | 1.3 | --- | 15.0 | --- |
| Richard Hagans | 4413 | 7815 | Greenfield | found | --- | --- | --- | --- | --- | 0.8 | 1.0 | 7.0 | 1.0 | --- | 7.0 | 1.0 |

| | | | | | | | | | | |
|--|------|---------------|------------|------|------|------|------|------|-----|------|
| Armour's Bone Meal | 4800 | Liberty | guaranteed | 0.07 | 0.32 | 0.95 | 0.56 | 1.31 | 1.6 | 27.0 |
| J. A. Bertch & Son | 4800 | Haubstadt | found | 0.10 | 0.07 | 1.32 | 0.71 | 1.49 | 1.9 | 31.2 |
| Ballard & Magenheimer | 4800 | Paoli | found | 0.10 | 0.04 | 1.14 | 0.52 | 1.28 | 1.8 | 29.8 |
| 16% Acid Phosphate | 4800 | Paoli | guaranteed | 0.10 | 0.04 | 1.14 | 0.52 | 1.28 | 1.8 | 31.0 |
| *W. H. Baker | 5295 | Goshen | found | | | | | | | 16.0 |
| *W. H. Baker | 5295 | Rushville | found | | | | | | | 0.5 |
| A. B. Norris | 5295 | Michigan City | found | | | | | | | 15.6 |
| A. C. Heischmidt | 5295 | Michigan City | found | | | | | | | 0.2 |
| *Shelbyville Canning Co. | 6035 | Shelbyville | guaranteed | | | | | | | 16.4 |
| Armour's 1-9-1 Fertilizer | 6035 | Ferdinand | found | 0.34 | 0.04 | 0.12 | 0.26 | 0.54 | 0.8 | 9.0 |
| Heidel Bros. | 6035 | Ferdinand | found | 0.18 | 0.08 | 0.16 | 0.43 | 0.37 | 0.8 | 1.3 |
| A. C. Heischmidt | 6035 | Michigan City | found | 0.07 | 0.24 | 0.39 | 0.30 | 0.80 | 1.0 | 9.0 |
| A. C. Heischmidt | 6035 | Michigan City | found | 0.06 | 0.18 | 0.35 | 0.31 | 0.59 | 0.9 | 1.0 |
| Armour's 1-12-1 Fertilizer | 6037 | Michigan City | found | 0.07 | 0.24 | 0.35 | 0.31 | 0.59 | 0.9 | 1.0 |
| *R. W. Myers | 6037 | Arcaadia | guaranteed | 0.36 | 0.09 | 0.25 | 0.40 | 0.70 | 0.8 | 12.0 |
| Ballard & Magenheimer | 6037 | Haubstadt | found | 0.06 | 0.33 | 0.33 | 0.23 | 0.77 | 1.1 | 12.6 |
| Armour's 18% Phosphate | 6041 | Haubstadt | found | 0.06 | 0.33 | 0.33 | 0.23 | 0.77 | 1.0 | 12.1 |
| *Northern Hospital for Insane | 6041 | Logansport | guaranteed | | | | | | | 18.0 |
| *Scottsburg Milling Co. | 6041 | Scottsburg | found | | | | | | | 0.5 |
| Armour's Special Grain Grower | 6477 | Scottsburg | guaranteed | | | | | | | 18.1 |
| *Reynolds Brooks Hardware Co. | 6477 | Loogootee | found | 0.12 | 0.35 | 0.51 | 0.66 | 1.04 | 1.6 | 8.0 |
| E. B. Schenk Hardware Co. | 6477 | Mt. Vernon | found | 0.28 | 0.49 | 0.58 | 0.55 | 1.35 | 1.9 | 7.9 |
| F. A. Forbes Seed Store | 6477 | Plymouth | found | 0.32 | 0.42 | 0.62 | 0.49 | 1.41 | 1.9 | 9.2 |
| Armour's 1-10-1 Fertilizer | 6478 | Plymouth | guaranteed | | | | | | | 1.1 |
| *Shelbyville Canning Co. | 6478 | Shelbyville | found | 0.38 | 0.15 | 0.15 | 0.32 | 0.68 | 1.0 | 8.3 |
| Ballard & Magenheimer | 6478 | Haubstadt | found | 0.04 | 0.31 | 0.38 | 0.27 | 0.73 | 1.0 | 10.0 |
| E. R. Obendorf | 6478 | Osgood | found | 0.03 | 0.04 | 0.45 | 0.38 | 0.52 | 1.0 | 10.4 |
| F. A. Forbes Seed Store | 6478 | Plymouth | found | 0.06 | 0.25 | 0.34 | 0.25 | 0.65 | 0.9 | 1.0 |
| Armour's Special Wheat, Corn & Oats | 6479 | Plymouth | found | 0.06 | 0.25 | 0.34 | 0.25 | 0.65 | 0.9 | 1.2 |
| *The F. W. Vance Co. | 6479 | Columbia City | guaranteed | | | | | | | 0.5 |
| Edw. F. Goeke Co. | 6479 | Evansville | found | 0.18 | 0.28 | 0.26 | 0.28 | 0.72 | 1.0 | 8.0 |
| J. C. Nedderman | 6479 | Summan | found | 0.20 | 0.25 | 0.13 | 0.52 | 0.58 | 1.1 | 1.0 |
| Armour's Ammoniated Phosphate No. 2 | 6481 | Summan | found | 0.17 | 0.02 | 0.35 | 0.26 | 0.51 | 1.2 | 8.3 |
| *R. W. Myers | 6481 | Arcadia | guaranteed | | | | | | | 0.7 |
| *J. W. Britton | 6481 | Arcadia | found | 0.29 | 0.83 | 0.64 | 0.49 | 1.31 | 1.6 | 10.0 |
| E. W. Hamilton | 6481 | Spencer | found | 0.04 | 1.03 | 0.30 | 0.43 | 1.37 | 1.8 | 11.2 |
| Sadie Calvin Sons | 6481 | Connersville | found | 0.08 | 0.62 | 0.63 | 0.47 | 1.33 | 1.8 | 10.6 |
| Armour's High Grade Ammoniated Phosphate | 6481 | Nashville | found | 0.40 | 0.06 | 0.60 | 0.74 | 1.06 | 1.8 | 10.0 |
| *A. Bledsoe | 6592 | Nashville | guaranteed | | | | | | | 1.6 |
| *Shelbyville Canning Co. | 6592 | Cuzco | found | 0.03 | 0.83 | 0.83 | 0.48 | 1.32 | 1.8 | 12.0 |
| Armour's Potash & Phosphate Special | 6712 | Shelbyville | found | 0.03 | 0.30 | 0.52 | 0.35 | 1.45 | 1.8 | 0.5 |
| J. C. Nedderman | 6712 | Shelbyville | guaranteed | | | | | | | 1.3 |
| Special Ammoniated Phosphate No. 1 | 6732 | Summan | found | | | | | | | 1.0 |
| *J. A. Bertsch & Son | 6732 | Summan | guaranteed | | | | | | | 0.5 |
| *J. R. Starr | 6732 | Liberty | found | 0.07 | 0.31 | 0.19 | 0.33 | 0.57 | 0.8 | 12.0 |
| Abe Bossert | 6732 | Winamac | found | 0.10 | 0.18 | 0.54 | 0.28 | 0.82 | 1.1 | 12.8 |
| Ballard & Magenheimer | 6732 | Brookville | found | 0.03 | 0.82 | 0.35 | 0.30 | 0.70 | 1.0 | 13.1 |
| Armour's 1-14-1 Fertilizer | 6732 | Brookville | found | 0.03 | 0.82 | 0.35 | 0.30 | 0.70 | 1.0 | 12.3 |
| *E. W. Hamilton | 6750 | Haubstadt | found | 0.03 | 0.82 | 0.47 | 0.28 | 0.82 | 1.1 | 11.5 |
| John Roth | 6750 | Haubstadt | guaranteed | | | | | | | 1.8 |
| Ballard & Magenheimer | 6750 | Connersville | found | 0.27 | 0.08 | 0.25 | 0.33 | 0.64 | 0.8 | 1.0 |
| | 6750 | Connersville | found | 0.14 | 0.18 | 0.24 | 0.44 | 0.36 | 1.0 | 14.2 |
| | 6750 | Fowler | found | 0.04 | 0.41 | 0.38 | 0.27 | 0.83 | 1.1 | 14.0 |
| | 6750 | Haubstadt | found | 0.04 | 0.41 | 0.38 | 0.27 | 0.83 | 1.1 | 13.6 |

14 (see page 17)

15 Purchased from W. F. Myers

16 Returned to Mfr. (see page 32)

* Sample received in the spring

12 Purchased from Edw. Billman

13 Sample to Mfr. Refund (see page 30)

14 Refund (see page 30)

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. BB | Sample taken at | Nitrogen, N | | | | | | | | | | Potash, K ₂ O, soluble in water, per cent. | | Phosphoric acid, P ₂ O ₅ | |
|---|--------------|-------------------|-----------------|--|---------------------------------|--|-------------------------------------|---|--|------------------|-----|----------------------|-----|---|-----|--|-----|
| | | | | Water soluble in nitrates and ammonia salts, per cent. | | | | | Active water insoluble or organic, per cent. | | | | | In water, per cent. | | Soluble and reverted, per cent. | |
| | | | | Water soluble | Insoluble or organic, per cent. | Active water insoluble or organic, per cent. | Inactive water insoluble, per cent. | Total water soluble and active, per cent. | Total, per cent. | Total, per cent. | | Insoluble, per cent. | | Total, per cent. | | Total, per cent. | |
| Armour Fertilizer Works, The, Chicago, Ill. | | | | | | | | | | | | | | | | | |
| Armour's 1-14 Fertilizer | 6831 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Reynolds Brooks Hardware Co. | 6831 | 7151 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *John W. Hamilton | 6831 | 7181 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *James E. Walters Jr | 6831 | 7190 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *J. J. Lawler | 6831 | 7194 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Kitchel Elevator Co. | 6831 | 7440 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A. B. Norris' Indiana Wheat Special | 6985 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A. B. Norris | 6985 | 7534 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ballard Packing Company, Marion, Ind. | | | | | | | | | | | | | | | | | |
| Ballard's Animal Tankage Fertilizer | 5600 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ballard Packing Co. | 5600 | 7882 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bausback & Sons, Robert, Shelbyville, Ind. | | | | | | | | | | | | | | | | | |
| Soft Bone | 3007 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Robert Bausback & Sons | 3007 | 6772 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Buhner, Ferdinand F., Seymour, Ind. | | | | | | | | | | | | | | | | | |
| Raw Ground Bone | 4171 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Buhner Fertilizer Co. | 4171 | 7821 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rock Phosphate | 5565 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Buhner Fertilizer Co. | 5565 | 7179 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Buhner Fertilizer Company, Seymour, Ind. | | | | | | | | | | | | | | | | | |
| Truck Grover | 5330 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Buhner Fertilizer Co. | 5330 | 7173 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Grain Booster | 5747 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Geo. E. Lucas | 5747 | 7155 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Buhner Fertilizer Co. | 5747 | 7178 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Buhner Fertilizer Co. | 5747 | 7820 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Acid Phosphate | 6075 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Buhner Fertilizer Co. | 6075 | 7177 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Buhner Fertilizer Co. | 6075 | 7819 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| W. T. Crop Grover | 6325 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *W. R. Bolles | 6325 | 7176 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Buhner Fertilizer Co. | 6325 | 7818 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| W. T. Truck Grover | 6325 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *W. R. Bolles | 6325 | 7175 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *W. W. May | 6325 | 7185 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| W. T. Grain Producer | 6327 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Buhner Fertilizer Co. | 6327 | 7174 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

| | | | | | | | | | | | | |
|---|------|----------------|------------|------|------|------|------|------|-----|------|------|------|
| W. T. Grain Grower | 6528 | Freestown | guaranteed | 0.16 | 0.03 | 0.69 | 0.82 | 0.88 | 1.6 | 0.2 | 8.0 | 2.0 |
| *Geo. B. Lucas | 6528 | Ewing | found | 0.04 | 0.22 | 0.74 | 0.80 | 1.00 | 1.8 | 0.4 | 7.4 | 2.4 |
| *W. R. Bolles | 7172 | Seymour | guaranteed | | | | | | | | 7.8 | 3.4 |
| 16% Acid Phosphate | 6906 | Seymour | found | | | | | | | | 16.0 | |
| *Bullner Fertilizer Co. | 6906 | Seymour | found | | | | | | | | 18.8 | 0.4 |
| *E. W. May | 6906 | Seymour | found | | | | | | | | 17.9 | 0.1 |
| Chicago Raw Products Company, Chicago, Ill. | | | | | | | | | | | | |
| Consumer's Special 1-29 Pure Bone Meal | 5672 | | guaranteed | 0.04 | 0.01 | 0.70 | 0.25 | 0.75 | 0.8 | | | 29.7 |
| A. G. Blackman | 5672 | Pekin | found | | | | | | | | | 32.9 |
| Consumers Brand Bone & Phosphate Mixture | 6388 | Salem | guaranteed | | 0.15 | 0.18 | 0.17 | 0.33 | 0.4 | | 15.0 | 8.0 |
| V. T. Reid | 6388 | Salem | found | | | | | | | | 13.1 | 13.3 |
| Consumers Ammoniated Bone Phosphate | 6828 | Greensburg | guaranteed | 0.04 | 0.32 | 0.23 | 0.21 | 0.59 | 0.6 | | 15.0 | 1.0 |
| H. O. Craig | 6828 | Greensburg | found | 0.09 | 0.23 | 0.23 | 0.23 | 0.55 | 0.8 | | 15.1 | 2.0 |
| V. T. Reid | 6828 | Salem | found | | | | | | 0.8 | | 15.0 | 2.9 |
| Cincinnati Phosphate Company, The, Cincinnati, Ohio | | | | | | | | | | | | |
| Patron High Grade Phosphate | 3226 | Mt. Vernon | guaranteed | | | | | | | | 16.0 | 1.0 |
| Albert Black | 3226 | Mt. Vernon | found | | | | | | | | 17.5 | 1.2 |
| Ammoniated Super Phosphate | 6292 | Montgomery | guaranteed | 0.35 | 0.80 | 0.24 | 0.31 | 1.39 | 1.6 | | 12.0 | 1.0 |
| *Jerry D. Toy | 6292 | Aurora | found | 0.37 | 1.06 | 0.21 | 0.16 | 1.64 | 1.8 | | 13.6 | 1.1 |
| *W. P. Beckett 18 | 6292 | Aurora | guaranteed | | | | | | | | 11.9 | 2.8 |
| High Grade Manure | 6293 | Cambridge City | guaranteed | 0.13 | 0.16 | 0.59 | 0.32 | 0.88 | 1.2 | 1.0 | 9.0 | 1.0 |
| *B. F. Connelly | 6293 | Cambridge City | found | | | | | | 1.2 | 1.1 | 9.1 | 1.2 |
| C.-Bone & Phosphate Mixture Wheat Special | 6755 | Dubois | guaranteed | 0.61 | 0.62 | 0.53 | 0.34 | 1.76 | 1.6 | | 8.0 | 8.0 |
| Kules & Hentrup | 6755 | Dubois | found | | | | | | 2.1 | | 10.3 | 9.9 |
| Capitol Crop Booster | 6758 | Chase | guaranteed | 0.07 | 0.11 | 0.20 | 0.22 | 0.38 | 0.4 | 1.0 | 10.0 | 1.0 |
| *W. J. Lawson | 6758 | Brookville | found | 0.08 | 0.20 | 0.13 | 0.19 | 0.41 | 0.6 | 1.1 | 10.6 | 1.3 |
| *M. Ripberger | 6758 | Dubois | found | 0.07 | 0.08 | 0.10 | 0.25 | 0.25 | 0.5 | 1.3 | 10.7 | 1.3 |
| Kules & Hentrup | 6758 | Dubois | found | | | | | | 0.9 | 11.2 | 1.5 | |
| Cincinnati Phosphate Company, The, St. Bernard, O. | | | | | | | | | | | | |
| Capital City Wheat Grower | 2886 | Campbellsburg | guaranteed | | | | | | | | 14.0 | 1.0 |
| Earl Patton | 2886 | Campbellsburg | found | | | | | | | | 15.0 | 0.8 |
| *"Bonus" A. Phosphate with Humus | 3703 | Cambridge City | guaranteed | | | | | | 0.4 | | 12.0 | 1.0 |
| *Wayne Petty 19 | 3903 | Cambridge City | found | 0.05 | 0.18 | 0.27 | 0.23 | 0.5 | | | 12.8 | 1.0 |
| Fred Reule | 3903 | Lafayette | found | 0.18 | 0.11 | 0.21 | 0.29 | 0.5 | | | 13.7 | 1.7 |
| Glendenin Fertilizer Company, Richmond, Ind. | | | | | | | | | | | | |
| Acid Phosphate Special | 4839 | Connersville | guaranteed | | | | | | | | 14.0 | |
| John H. Brumfiel | 4839 | Connersville | found | | | | | | | | 15.2 | 0.5 |
| Wheat Grower | 6117 | Richmond | guaranteed | | | | | | 0.8 | | 10.0 | |
| *Glendenin Fertilizer Co. | 6117 | Richmond | found | 0.21 | 0.56 | 0.33 | 0.77 | 1.1 | 0.6 | 9.0 | 4.8 | |
| John H. Brumfiel | 6117 | Connersville | found | 0.04 | 0.11 | 0.31 | 0.31 | 0.49 | 0.8 | 0.8 | 10.5 | 1.8 |
| Glendenin Fertilizer Co. | 6117 | Richmond | guaranteed | 0.63 | 0.01 | 0.04 | 0.22 | 0.68 | 0.9 | 0.7 | 9.1 | 1.0 |
| Corn Grower | 6607 | Richmond | guaranteed | | | | | | 1.6 | | 10.0 | |
| Glendenin Fertilizer Co. | 6607 | Richmond | found | 1.51 | 0.18 | 0.21 | 1.69 | 1.9 | | | 9.2 | 3.1 |
| Tankage and Phosphate | 6608 | Richmond | guaranteed | | | | | | 0.8 | | 11.0 | |
| *Glendenin Fertilizer Co. | 6608 | Richmond | found | 0.55 | 0.77 | 0.09 | 0.14 | 0.86 | 1.0 | | 11.7 | 1.3 |
| Glendenin Fertilizer Co. | 6608 | Richmond | guaranteed | | | | | | 0.9 | | 10.8 | 0.8 |
| Acid Phosphate | 6609 | Richmond | guaranteed | | | | | | | | 16.0 | |
| *Glendenin Fertilizer Co. | 6609 | Richmond | found | | | | | | | | 16.4 | 1.2 |
| John H. Brumfiel | 6609 | Connersville | guaranteed | | | | | | | | 16.0 | 0.5 |
| Phosphate and Bone | 6610 | Richmond | guaranteed | | | | | | 1.8 | | 12.0 | 7.0 |
| *Glendenin Fertilizer Co. | 6610 | Richmond | found | 0.35 | 0.83 | 0.31 | 0.27 | 1.53 | 1.8 | | 9.2 | 11.4 |

¹⁸ Purchased from A. E. Hall, Guilford, Ind.
¹⁹ Purchased from B. F. Connelly

* Sample received in the spring
¹⁷ Purchased from J. J. Lawler, Chicago, Ill.

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. B3 | Sample taken at | Nitrogen, N | | | | | | Potash, K_2O , soluble in water, per cent. | Soluble and reversioned, per cent. | Phosphoric acid, P_2O_5 | |
|---|--------------|-------------------|-----------------|---|----------------------------------|---|---|---|------------------|--|------------------------------------|---------------------------|------------------|
| | | | | Water soluble in nitrate and ammonia salts, per cent. | Water soluble organic, per cent. | Active water insoluble or granular, per cent. | Inactive water insoluble or granular, per cent. | Total water soluble and active, per cent. | Total, per cent. | | | Insoluble, per cent. | Total, per cent. |
| Darling & Company, Chicago, Ill. | | | | | | | | | | | | | |
| Darling's "A" Pure Ground Bone | 5120 | 7703 | Jasper | 0.08 | 0.16 | 1.28 | 0.57 | 1.63 | 1.8 | | | | 28.0 |
| M. L. Steinhart | 5120 | 7725 | Milan | 0.08 | 0.21 | 1.28 | 0.63 | 1.87 | 2.2 | | | | 28.8 |
| Darling's Sheep Manure | 6258 | 6715 | Hudson | 0.15 | 0.57 | 0.40 | 1.28 | 1.32 | 2.0 | 1.0 | | | 1.0 |
| *Frank Strook | 6258 | 7007 | Fort Wayne | 0.39 | 0.69 | 0.43 | 0.86 | 1.91 | 1.1 | | | | 1.8 |
| *W. D. Henderson & Co. ²⁰ | 6258 | 7070 | Elkhart | 0.50 | 0.62 | 0.98 | 1.23 | 1.07 | 2.4 | 2.0 | | | 1.3 |
| *C. E. Passon | 6258 | 7413 | Evansville | 0.50 | 0.25 | 0.53 | 1.02 | 1.28 | 2.3 | 2.1 | | | 2.9 |
| Darling's 16% Acid Phosphate | 6372 | | | | | | | | | | | | 1.8 |
| *Edw. F. Goette, Co. ²¹ | 6372 | | | | | | | | | | | | |
| *H. F. Pluman | 6372 | 6792 | Bedford | 0.17 | 0.77 | 1.50 | 0.66 | 2.44 | 3.1 | 1.1 | 16.0 | | |
| *O. G. Fifele | 6372 | 7327 | Hebron | 0.25 | 0.35 | 1.08 | 0.62 | 1.08 | 2.3 | 1.4 | 18.9 | | 1.0 |
| Cutsinger & Thompson | 6372 | 7327 | Shelbyville | | | | | | | | 17.9 | | 0.9 |
| F. J. Feinkauf | 6372 | 7362 | San Pierre | | | | | | | | 16.0 | | 3.0 |
| Darling's Grain Grower | 6373 | | | | | | | | | | 18.2 | | 0.8 |
| *Earl Mummert | 6373 | 6654 | Flora | 0.12 | 0.23 | 0.27 | 0.38 | 0.62 | 1.0 | 1.0 | 9.0 | | 2.0 |
| *George Bros. & Huff | 6373 | 7076 | Nappanee | 0.28 | 0.04 | 0.35 | 0.32 | 0.68 | 1.0 | 0.9 | 9.8 | | 2.1 |
| *J. C. Phillips | 6373 | 7371 | Star City | 0.24 | 0.28 | 0.24 | 0.34 | 0.76 | 1.1 | 1.0 | 10.0 | | 2.2 |
| Geo. L. Rupp | 6373 | 7724 | Milan | 0.15 | 0.01 | 0.45 | 0.39 | 0.61 | 1.0 | 0.9 | 7.5 | | 4.6 |
| Darling's Farmers' Favorite | 6375 | | | | | | | | | | 2.4 | | 2.0 |
| *H. F. Pluman | 6375 | 6793 | Bedford | 0.17 | 0.77 | 1.50 | 0.66 | 2.44 | 3.1 | 1.1 | 8.0 | | 2.0 |
| H. F. Pluman | 6375 | 7007 | South Bend | 0.25 | 0.35 | 1.08 | 0.62 | 1.08 | 2.3 | 1.4 | 7.6 | | 4.7 |
| *Wesley Miller Flour & Feed Co. ²³ | 6375 | | | | | | | | | | 1.1 | | 5.8 |
| Darling's Sure Winner | 6377 | | | | | | | | | | 6.3 | | 5.8 |
| *Geo. Steckley | 6377 | | | | | | | | | | 4.7 | | 5.8 |
| *Pieper & Smith | 6377 | 7301 | Kendallville | 0.09 | 0.30 | 0.39 | 0.62 | 0.78 | 0.8 | 0.5 | 10.0 | | 2.0 |
| Abel Spears | 6377 | 7301 | Dillsboro | 0.35 | 0.01 | 0.32 | 0.42 | 0.68 | 1.1 | 1.0 | 10.1 | | 2.7 |
| Darling's Little Giant Brand | 6812 | 7723 | Holt | 0.15 | 0.45 | 0.40 | 0.60 | 1.01 | 0.5 | 11.2 | 1.7 | | 1.5 |
| *Heavilin & Co. | 6812 | | | | | | | | | | 0.8 | | 2.0 |
| Darling's One-Eight-Two Brand | 6813 | 6710 | Marion | 0.06 | 0.10 | 0.47 | 0.38 | 0.63 | 1.0 | 10.8 | 10.0 | | 3.1 |
| *S. F. Trembley Co. | 6813 | | | | | | | | | | 3.1 | | 3.1 |
| George Bros. & Huff | 6813 | 6730 | Columbia City | 0.17 | 0.05 | 0.40 | 0.58 | 0.62 | 1.2 | 2.8 | 8.4 | | 3.5 |
| Darling's Half and Half | 6813 | 7075 | Nappanee | 0.28 | 0.01 | 0.23 | 0.38 | 0.52 | 0.9 | 2.1 | 9.4 | | 2.2 |
| *Heavilin & Co. | 6901 | | | | | | | | | | 0.8 | | 13.0 |
| M. L. Steinhart | 6901 | 6709 | Marion | 0.06 | 0.43 | 0.35 | 0.25 | 0.80 | 1.1 | 11.0 | 12.2 | | 12.2 |
| Geo. L. Rupp | 6901 | 7702 | Jasper | 0.04 | 0.40 | 0.39 | 0.30 | 0.84 | 1.1 | 12.2 | 11.3 | | 11.3 |
| D. & K. Fertilizer Company, Indianapolis, Ind. | 6901 | 7722 | Milan | 0.21 | 0.11 | 0.41 | 0.47 | 0.73 | 1.2 | 10.7 | 10.7 | | 12.8 |
| D. & K. 14% Acid Phosphate | 5483 | | | | | | | | | | 14.0 | | |
| O. H. Mills ²⁴ | 5483 | 7746 | Mooreville | | | | | | | | 14.3 | | 1.3 |
| Ammoniated Mixture | 5769 | | | | | | | | | | 12.0 | | |
| C. J. Hodson | 5769 | 7140 | Sedalia | 0.08 | 1.18 | 0.18 | 0.36 | 1.36 | 1.8 | 1.6 | 10.8 | | 2.6 |
| Available Plant Food | 6223 | | | | | | | | | | 10.0 | | 1.2 |
| *Fred Luers | 6226 | 7307 | Delaware | 0.11 | 0.98 | 0.18 | 0.23 | 1.27 | 1.5 | 9.8 | 9.8 | | 1.9 |

[illegible]

* Sample received in the spring

00 Not labeled. Withdrawn. Labels furnished (see page 31)

¹ Not labeled. Withdrawn. Labels furnished (see page 31)

22 Withdrawn (see page 31)

²³ Sample to Mfr. (see page 33)

²⁴ Purchased from Ira Hadley

²⁵ Misbranded. Withdrawn. Relabeled (see page 31)

²⁶ Sample to Mfr. (see page 33)

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. B1B | Sample taken at | Nitrogen, N | | | | Potash, K ₂ O, soluble in water, per cent. | Phosphoric acid, P ₂ O ₅ | | | | |
|--|--------------|--------------------|------------------------------------|--|--|--|---|---|--|---------------------------------|----------------------|------------------|------|
| | | | | Water soluble in nitrates and ammonia salts, per cent. | Active water-insoluble or organic, per cent. | Inactive water-insoluble or organic, per cent. | Total water-soluble and active, per cent. | | Total, per cent. | Soluble and reverted, per cent. | Insoluble, per cent. | Total, per cent. | |
| Empire Guano Company, New Albany Sales Department, New Albany, Ind. Ammoniated Potash G. A. Hillemeier Indiana Special No. 2 Fertilizer E. B. Utterback & Son Sam Braun Wedeking's Hummer Grain Grower Theodore A. Stunkel Wedeking's General Crop Edwin Wedeking Empire 2 & 26 Steamed Bone John A. Higdon | 6323 | 7687 | Huntingburg guaranteed found | 0.15 | 0.02 | 0.12 | 0.31 | 0.29 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| | 6323 | 7687 | Huntingburg guaranteed found | 0.15 | 0.02 | 0.12 | 0.31 | 0.29 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| | 6967 | 7470 | Bargersville found | 0.14 | 0.07 | 0.12 | 0.17 | 0.33 | 0.3 | 1.0 | 14.0 | 1.0 | --- |
| | 6967 | 7470 | Bargersville found | 0.21 | 0.03 | 0.05 | 0.11 | 0.29 | 0.4 | 1.1 | 14.3 | 0.9 | --- |
| | 6967 | 7470 | Bargersville found | 0.21 | 0.03 | 0.05 | 0.11 | 0.29 | 0.4 | 1.1 | 14.3 | 0.9 | --- |
| | 6982 | 7543 | Haubstadt found | 0.02 | 0.02 | 0.30 | 0.23 | 0.34 | 0.6 | 1.0 | 12.0 | 0.1 | --- |
| | 6982 | 7543 | Haubstadt found | 0.02 | 0.02 | 0.30 | 0.23 | 0.34 | 0.6 | 1.0 | 12.0 | 0.1 | --- |
| | 6983 | 7654 | Dale found | 0.17 | 0.12 | 0.15 | 0.66 | 0.44 | 1.1 | 1.1 | 12.0 | 1.0 | --- |
| | 6988 | 7850 | Scottsburg found | 0.18 | 0.01 | 1.30 | 0.61 | 1.49 | 1.6 | 2.1 | 11.8 | 1.3 | 26.0 |
| | 6988 | 7850 | Scottsburg found | 0.18 | 0.01 | 1.30 | 0.61 | 1.49 | 1.6 | 2.1 | 11.8 | 1.3 | 26.2 |
| Evansville Packing Company, Evansville, Ind. High Grade Soluble Phosphate J. Wilson & Son Bone Phosphate & Potash Evansville Packing Co. Three B. Evansville Packing Co. "Farmers Pride" Evansville Packing Co. Wonder Growth Evansville Packing Co. "Leader" *A. Graves Sons A. Graves Sons | 5360 | 7586 | Evansville guaranteed found | --- | --- | --- | --- | --- | --- | --- | 16.0 | 2.0 | --- |
| | 5360 | 7586 | Evansville guaranteed found | --- | --- | --- | --- | --- | --- | --- | 16.7 | 2.2 | --- |
| | 6057 | 7583 | Evansville guaranteed found | 0.24 | 0.04 | 0.40 | 0.42 | 0.68 | 0.8 | 1.0 | 8.0 | 2.0 | --- |
| | 6058 | 7583 | Evansville guaranteed found | 0.24 | 0.04 | 0.40 | 0.42 | 0.68 | 0.8 | 1.0 | 8.0 | 2.0 | --- |
| | 6058 | 7583 | Evansville guaranteed found | 0.31 | 0.13 | 0.63 | 0.53 | 1.07 | 1.6 | 2.0 | 9.5 | 2.6 | --- |
| | 6247 | 7581 | Evansville guaranteed found | 0.04 | 0.01 | 0.46 | 0.49 | 0.51 | 1.0 | 1.2 | 12.7 | 3.0 | --- |
| | 6247 | 7581 | Evansville guaranteed found | 0.04 | 0.01 | 0.46 | 0.49 | 0.51 | 1.0 | 1.2 | 12.7 | 3.0 | --- |
| | 6546 | 7582 | Evansville guaranteed found | 0.24 | 0.12 | 0.52 | 0.52 | 0.88 | 1.4 | 1.0 | 10.0 | 2.0 | --- |
| | 6546 | 7582 | Evansville guaranteed found | 0.24 | 0.12 | 0.52 | 0.52 | 0.88 | 1.4 | 1.0 | 10.0 | 2.0 | --- |
| | 6734 | 6941 | Tell City found | 0.35 | 0.61 | 0.86 | 0.78 | 1.82 | 2.6 | 1.4 | 10.8 | 2.2 | --- |
| 6734 | 6941 | Tell City found | 0.35 | 0.61 | 0.86 | 0.78 | 1.82 | 2.6 | 1.4 | 10.8 | 2.2 | --- | |
| 6734 | 7633 | Tell City found | 0.28 | 0.11 | 0.80 | 0.81 | 1.19 | 2.0 | 1.0 | 10.8 | 1.8 | --- | |
| Farmers Fertilizer Company, The, Columbus, Ohio Farmers "1g" *Geo. E. Stauffer | 5192 | 7098 | South Bend guaranteed found | --- | --- | --- | --- | --- | --- | --- | 16.0 | 1.0 | --- |
| | 5192 | 7098 | South Bend guaranteed found | --- | --- | --- | --- | --- | --- | --- | 16.5 | 1.2 | --- |
| | 3199 | 7396 | Trevlac guaranteed found | --- | --- | --- | --- | --- | --- | --- | 14.0 | 0.4 | --- |
| | 3199 | 7396 | Trevlac guaranteed found | --- | --- | --- | --- | --- | --- | --- | 14.3 | 0.4 | --- |
| | 4817 | 7493 | Cedar Grove found | 0.06 | 0.47 | 0.37 | 0.40 | 0.90 | 1.2 | 8.0 | 11.0 | --- | |
| | 4817 | 7493 | Cedar Grove found | 0.06 | 0.47 | 0.37 | 0.40 | 0.90 | 1.2 | 8.0 | 11.0 | --- | |
| | 4817 | 7661 | Ferdinand found | 0.08 | 0.07 | 0.58 | 0.57 | 0.73 | 1.3 | 8.4 | 12.4 | --- | |
| | 4817 | 7661 | Ferdinand found | 0.08 | 0.07 | 0.58 | 0.57 | 0.73 | 1.3 | 8.4 | 12.4 | --- | |
| | 6188 | 7976 | Salem guaranteed found | 0.08 | 0.21 | 0.46 | 0.45 | 0.75 | 1.2 | 8.2 | 12.9 | --- | |
| | 6188 | 7976 | Salem guaranteed found | 0.08 | 0.21 | 0.46 | 0.45 | 0.75 | 1.2 | 8.2 | 12.9 | --- | |

| | | | | | | | | | | | | | | | |
|--|-------------------------------------|------------------|------------|------|------|------|------|------|-----|------|------|-----|------|------|------|
| 6272 | *H. C. Burton | French Lick | guaranteed | 0.14 | 0.36 | 0.21 | 0.29 | 0.71 | 1.0 | 1.2 | 12.8 | 0.8 | 1.0 | 12.0 | --- |
| 6273 | Corn & Wheat Grower without Potash | --- | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6276 | *Morgan & Warford | Trevlac | guaranteed | 0.19 | 0.35 | 0.56 | 0.54 | 1.1 | 0.8 | --- | 9.6 | 1.1 | 8.0 | --- | 0.7 |
| 6276 | Humus Phosphate | --- | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6379 | J. S. McClain ²⁹ | Greenwood | guaranteed | 0.11 | 0.16 | 0.23 | 0.27 | 0.5 | 0.5 | --- | 12.0 | 0.4 | 12.0 | --- | 1.3 |
| 6379 | --- | --- | found | --- | --- | --- | --- | --- | --- | --- | --- | 0.5 | 12.5 | --- | 0.8 |
| Farmers Ground Rock Phosphate Company, Mt. Pleasant, Tenn. *Farmers Ground Phosphate XXX Brand" *W. O. Thompson | | | | | | | | | | | | | | | |
| 4896 | --- | Morocco | guaranteed | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 30.0 |
| 4896 | --- | --- | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 29.6 |
| Federal Chemical Company, Louisville, Ky. *A. Daybreak Wheat & Corn Special *A. D. Toner | | | | | | | | | | | | | | | |
| 4143 | --- | Delong | guaranteed | 0.17 | 0.15 | 0.13 | 0.35 | 0.45 | 0.4 | 1.0 | 11.0 | 0.4 | 1.0 | 11.0 | --- |
| 4143 | *A. D. Toner | Oak | found | 0.17 | 0.02 | 0.15 | 0.36 | 0.34 | 0.8 | 0.9 | 11.1 | 0.8 | 1.0 | 11.1 | 5.8 |
| 4143 | *Jeff Van Gundy | Royal Center | found | 0.17 | 0.02 | 0.15 | 0.36 | 0.34 | 0.7 | 1.0 | 11.1 | 0.8 | 1.0 | 11.1 | 6.0 |
| 4143 | R. B. King | Dunns Station | found | 0.08 | 0.06 | 0.12 | 0.18 | 0.5 | 0.8 | 11.3 | 5.8 | 0.5 | 1.0 | 11.3 | 5.8 |
| 4143 | Frank Powers | --- | found | 0.08 | 0.06 | 0.12 | 0.27 | 0.23 | 0.5 | 1.0 | 11.9 | 0.5 | 1.0 | 11.9 | 4.5 |
| 5016 | Daybreak High Grade Acid Phosphate | Bedford | guaranteed | --- | --- | --- | --- | --- | --- | --- | 16.0 | --- | --- | 16.0 | --- |
| 5016 | *W. H. Ikard | --- | found | --- | --- | --- | --- | --- | --- | --- | 16.0 | --- | --- | 16.0 | 4.6 |
| 5252 | Daybreak Ground Phosphate Rock | Bluffton | guaranteed | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 29.7 |
| 5252 | *John H. Hoag | --- | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 29.0 |
| 5252 | John Whipps | Carlisle | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 30.5 |
| 5435 | Half & Half Phosphate Mixture | Orleans | guaranteed | --- | --- | --- | --- | --- | --- | --- | 10.0 | --- | --- | 10.0 | --- |
| 5435 | *Pickens & Bregle | Dubols | found | --- | --- | --- | --- | --- | --- | --- | 10.2 | --- | --- | 10.2 | 13.6 |
| 5435 | Edw. Hemmerlein | Vevay | found | --- | --- | --- | --- | --- | --- | --- | 7.5 | --- | --- | 7.5 | 18.2 |
| 5435 | J. S. Spencer | Cleora | found | --- | --- | --- | --- | --- | --- | --- | 9.6 | --- | --- | 9.6 | 14.9 |
| 5435 | O. L. Stage | Dunns Station | found | --- | --- | --- | --- | --- | --- | --- | 10.0 | --- | --- | 10.0 | 13.5 |
| 5435 | Frank Powers | --- | found | --- | --- | --- | --- | --- | --- | --- | 10.0 | --- | --- | 10.0 | 13.9 |
| 5637 | Pure Bona | Shelbyville | guaranteed | 0.13 | 0.15 | 0.85 | 0.37 | 1.13 | 1.5 | 1.5 | --- | --- | --- | --- | 30.0 |
| 5637 | *C. H. Billman & Sons ³⁰ | --- | found | --- | --- | --- | --- | --- | --- | --- | 12.5 | --- | --- | 12.5 | 26.5 |
| 5837 | Sand Land Special | Milford Junction | guaranteed | 0.07 | 0.46 | 0.23 | 0.41 | 0.79 | 1.2 | 1.0 | 12.6 | --- | --- | 12.6 | 2.9 |
| 5837 | *E. Baumgartner | --- | found | --- | --- | --- | --- | --- | --- | --- | 15.0 | --- | --- | 15.0 | --- |
| 5838 | Daybreak Nitro Phosphate | Paoli | guaranteed | 0.03 | 0.07 | 0.16 | 0.34 | 0.25 | 0.6 | --- | 15.0 | --- | --- | 15.0 | 2.8 |
| 5838 | *M. L. Farlow | --- | found | --- | --- | --- | --- | --- | --- | --- | 1.2 | --- | --- | 1.2 | --- |
| 5864 | Daybreak Clay Land Crop Grower | Delong | guaranteed | 0.20 | 0.33 | 0.21 | 0.56 | 0.74 | 1.3 | 0.6 | 13.0 | --- | --- | 13.0 | 3.2 |
| 5864 | *A. D. Toner ³¹ | --- | found | --- | --- | --- | --- | --- | --- | --- | 10.0 | --- | --- | 10.0 | --- |
| 5866 | Daybreak Cracker-Jack | Noblesville | guaranteed | 0.08 | 0.02 | 0.16 | 0.34 | 0.26 | 0.6 | 1.0 | 12.7 | --- | --- | 12.7 | 3.4 |
| 5866 | Dr. Samuel Harrell | --- | found | --- | --- | --- | --- | --- | --- | --- | 10.0 | --- | --- | 10.0 | --- |
| 6417 | A-1 Formula 1916 | Shelbyville | guaranteed | 0.91 | 0.17 | 0.30 | 0.12 | 1.38 | 1.5 | --- | 10.6 | --- | --- | 10.6 | 9.4 |
| 6417 | *C. H. Billman & Sons | Kewanna | found | 0.50 | 0.57 | 0.28 | 0.35 | 1.35 | 1.7 | --- | 9.6 | --- | --- | 9.6 | 7.7 |
| 6417 | Jordan & Baird | Scottsburg | guaranteed | 0.63 | 0.23 | 0.32 | 0.39 | 1.21 | 1.6 | --- | 12.0 | --- | --- | 12.0 | --- |
| 6418 | High Grade Fertilizer | --- | found | --- | --- | --- | --- | --- | --- | --- | 12.1 | --- | --- | 12.1 | 2.7 |
| 6418 | *Scottsburg Milling Co. | Delong | guaranteed | 0.88 | 0.38 | 0.31 | 0.43 | 1.57 | 2.0 | 1.0 | 9.0 | --- | --- | 9.0 | --- |
| 6419 | Special Potato Fertilizer | Boonville | found | 2.37 | 0.51 | 0.14 | 0.28 | 3.02 | 3.3 | 1.1 | 8.1 | --- | --- | 8.1 | 3.9 |
| 6419 | *A. D. Toner ³² | Bedford | guaranteed | --- | --- | --- | --- | --- | --- | --- | 12.0 | --- | --- | 12.0 | --- |
| 6420 | Potato Grower | Deputy | found | 0.35 | 0.03 | 0.24 | 0.08 | 0.62 | 0.7 | --- | 12.3 | --- | --- | 12.3 | 9.3 |
| 6420 | *Boonville Implement Co. | --- | found | --- | --- | --- | --- | --- | --- | --- | 12.0 | --- | --- | 12.0 | --- |
| 6421 | Red Rooster Mixture | Vevay | guaranteed | 0.35 | 0.04 | 0.23 | 0.45 | 0.65 | 1.1 | --- | 11.0 | --- | --- | 11.0 | 5.0 |
| 6421 | *W. H. Ikard | Markland | found | 0.04 | 0.38 | 0.13 | 0.25 | 0.55 | 0.8 | --- | 12.1 | --- | --- | 12.1 | 6.8 |
| 6421 | *Deputy Implement Co. | --- | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6421 | A-1 Fertilizer 1916 | --- | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6422 | *James E. Shaw & Sons | --- | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6422 | L. B. Stow | --- | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

* Sample received in the spring
²⁷ Purchased from Ira Deer
²⁸ Purchased from Chas. Bayne
²⁹ Purchased from W. D. McCartney
³⁰ Sample contains approx. 62 lbs. sand per ton. Returned to Mfr.
 (see page 32)
³¹ Returned to Mfr. (see page 32)
³² Returned to Mfr. (see page 32)

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. BB | Sample taken at | Nitrogen, N | | | | | | Potash, K ₂ O, soluble in water, per cent. | | | Phosphoric acid, P ₂ O ₅ | |
|---|--------------|-------------------|---------------------|---|--------------------|-----------------------------------|-------------------------------------|--------------------------------|------------------|---|---------------------------------|----------------------|--|------------------|
| | | | | Water soluble in nitrate and ammonia salts, per cent. | Organic, per cent. | Active water-insoluble, per cent. | Inactive water-insoluble, per cent. | Total water-soluble, per cent. | Total, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted, per cent. | Insoluble, per cent. | Phosphoric acid, P ₂ O ₅ | Total, per cent. |
| | | | | | | | | | | | | | | |
| Federal Chemical Company, Louisville, Ky. | | | | | | | | | | | | | | |
| A-1 Corn & Wheat Fertilizer | 6423 | | guaranteed | 0.08 | 0.40 | 0.19 | 0.33 | 0.67 | 0.8 | --- | 14.0 | --- | --- | --- |
| *John S. Darnell | 6423 | 7165 | Worthington found | 0.08 | 0.40 | 0.19 | 0.33 | 0.67 | 0.8 | --- | 13.3 | 4.0 | --- | --- |
| *W. J. Morris | 6423 | 7382 | Edinburg found | 0.20 | 0.15 | 0.20 | 0.37 | 0.63 | 1.0 | --- | 11.4 | 5.9 | --- | --- |
| Joe Giesting | 6423 | 7800 | Batesville found | 0.46 | 0.03 | 0.20 | 0.11 | 0.69 | 0.8 | --- | 15.1 | 5.6 | --- | --- |
| Scottsburg Milling Co. | 6423 | 7849 | Scottsburg found | 0.07 | 0.42 | 0.14 | 0.17 | 0.63 | 0.8 | --- | 14.0 | 5.3 | --- | --- |
| Potato & Tobacco Fertilizer | 6424 | | guaranteed | 0.95 | 0.32 | 0.39 | 0.44 | 1.66 | 2.1 | 1.0 | 10.0 | --- | --- | --- |
| *G. W. Murray | 6424 | 6818 | Mitchell found | 0.95 | 0.32 | 0.39 | 0.44 | 1.66 | 2.1 | 1.0 | 10.0 | 2.7 | --- | --- |
| Tobacco Truck & Tomato Fertilizer 1916 | 6425 | | guaranteed | 0.60 | 0.29 | 0.40 | 0.41 | 1.29 | 1.7 | 1.2 | 9.0 | --- | --- | --- |
| *Forrest Krieger | 6425 | 6704 | Kendallville found | 0.65 | 0.01 | 0.21 | 0.33 | 0.87 | 1.2 | 1.2 | 9.9 | 6.5 | --- | --- |
| *O. G. Whitel | 6425 | 6381 | Wabash found | 0.53 | 0.43 | 0.23 | 0.31 | 1.49 | 1.8 | 0.6 | 11.0 | 4.1 | --- | --- |
| Special Truck & Tomato Fertilizer | 6426 | | guaranteed | 0.39 | 0.25 | 0.20 | 0.46 | 0.84 | 1.3 | 0.5 | 11.6 | 4.1 | --- | --- |
| *Boonville Implement Co. | 6426 | 6955 | Boonville found | 0.31 | 0.23 | 0.15 | 0.31 | 0.69 | 1.0 | 1.0 | 10.1 | 6.1 | --- | --- |
| *Rider Packing Co. | 6426 | 7202 | Crothersville found | 0.18 | 0.04 | 0.16 | 0.32 | 0.38 | 0.7 | 0.7 | 9.7 | 8.7 | --- | --- |
| Standard Grain Grower | 6429 | | guaranteed | 0.21 | 0.02 | 0.12 | 0.15 | 0.35 | 0.5 | 0.6 | 11.8 | 8.7 | --- | --- |
| *S. P. Fisher | 6429 | 6977 | New Castle found | 0.06 | 0.01 | 0.15 | 0.28 | 0.22 | 0.4 | 0.5 | 11.7 | 7.6 | --- | --- |
| Daybreak Grain Grower 1916 | 6432 | | guaranteed | 0.17 | 0.01 | 0.19 | 0.23 | 0.37 | 0.6 | 0.4 | 11.8 | 9.4 | --- | --- |
| *M. L. Farlow | 6432 | 6851 | Paoli found | 0.34 | 0.12 | 0.24 | 0.43 | 0.7 | 1.1 | 1.1 | 11.0 | 7.8 | --- | --- |
| Daybreak A-1 Champion | 6433 | | guaranteed | 0.28 | 0.09 | 0.13 | 0.37 | 0.5 | 0.5 | --- | 15.0 | --- | --- | --- |
| *M. L. Farlow | 6433 | 6855 | Jasper found | 0.55 | 0.09 | 0.17 | 0.19 | 0.81 | 1.0 | --- | 10.0 | 4.5 | --- | --- |
| *Geo. A. Wilhelm | 6438 | 7889 | Paoli found | 0.07 | 0.46 | 0.13 | 0.24 | 0.63 | 0.9 | --- | 8.3 | 12.7 | --- | --- |
| 1st Prize Corn & Wheat Champion | 6438 | 7284 | Dupont found | 0.04 | 0.11 | 0.15 | 0.15 | 0.15 | 0.4 | --- | 9.8 | 10.5 | --- | --- |
| 1st Prize Corn, Wheat & Oats Grower | 6439 | 7052 | Warsaw found | 0.17 | 0.01 | 0.12 | 0.24 | 0.43 | 0.7 | 1.1 | 11.0 | 7.8 | --- | --- |
| *Little Crow Milling Co. | 6445 | | guaranteed | 0.28 | 0.09 | 0.13 | 0.37 | 0.5 | 0.5 | --- | 15.0 | --- | --- | --- |
| 1st Prize Ammoniated Bone Phosphate | 6445 | 7674 | Dupont found | 0.55 | 0.09 | 0.17 | 0.19 | 0.81 | 1.0 | --- | 10.0 | 4.5 | --- | --- |
| Geo. A. Wilhelm | 6445 | 7674 | Shelbyville found | 0.07 | 0.46 | 0.13 | 0.24 | 0.63 | 0.9 | --- | 8.3 | 12.7 | --- | --- |
| Standard Meal Mixture | 6564 | | guaranteed | 0.13 | 0.02 | 0.09 | 0.03 | 0.24 | 0.3 | 0.3 | 16.0 | 3.1 | --- | --- |
| Crisinger & Thompson | 6564 | 7326 | Waldron found | 0.25 | 0.16 | 0.08 | 0.11 | 0.49 | 0.6 | 0.3 | 17.1 | 1.3 | --- | --- |
| Frank Todd & Co. | 6564 | 7733 | Waldron found | 0.04 | 0.11 | 0.11 | 0.15 | 0.15 | 0.4 | 0.5 | 9.0 | 9.0 | --- | --- |
| High Grade Phosphate & Tobacco Fertilizer | 6928 | | guaranteed | 0.17 | 0.01 | 0.13 | 0.29 | 0.37 | 0.6 | 0.5 | 9.7 | 10.8 | --- | --- |
| *Waldron Supply Co. ³⁵ | 6928 | 6781 | Bedford found | 0.20 | 0.02 | 0.14 | 0.24 | 0.36 | 0.6 | 0.5 | 9.1 | 9.2 | --- | --- |
| *Waldron Supply Co. ³⁶ | 6928 | 6782 | Warsaw found | 0.28 | 0.02 | 0.15 | 0.17 | 0.43 | 0.6 | 0.9 | 10.0 | 9.0 | --- | --- |
| *J. B. Swain | 6928 | 7351 | Warsaw found | 0.11 | 0.04 | 0.11 | 0.15 | 0.15 | 0.4 | 0.5 | 11.5 | 5.6 | --- | --- |
| M. L. Steinhardt | 6928 | 7704 | Jasper found | 0.04 | 0.11 | 0.11 | 0.15 | 0.15 | 0.4 | 0.5 | 9.0 | 9.0 | --- | --- |
| Daybreak Champion Grain Grower | 6801 | | guaranteed | 0.17 | 0.01 | 0.13 | 0.29 | 0.37 | 0.6 | 0.5 | 9.7 | 10.8 | --- | --- |
| *James A. Starnes | 6801 | 7409 | Bedford found | 0.20 | 0.02 | 0.14 | 0.24 | 0.36 | 0.6 | 0.5 | 9.1 | 9.2 | --- | --- |
| Stapp & Ikard | 6857 | 7970 | Warsaw found | 0.28 | 0.02 | 0.15 | 0.17 | 0.43 | 0.6 | 0.9 | 10.0 | 9.0 | --- | --- |
| Black Land Special | 6857 | 7053 | Warsaw found | 0.11 | 0.02 | 0.24 | 0.23 | 0.37 | 0.6 | 0.4 | 11.0 | 5.6 | --- | --- |
| *Little Crow Milling Co. | 6857 | | guaranteed | 0.11 | 0.02 | 0.24 | 0.23 | 0.37 | 0.6 | 0.4 | 11.0 | 5.6 | --- | --- |
| Standard Crop Maker | 6857 | 7386 | Bedford found | 0.11 | 0.02 | 0.24 | 0.23 | 0.37 | 0.6 | 0.4 | 11.0 | 5.6 | --- | --- |

| | | | | | | | | | | | |
|---|------|--------------|------------------|------|------|------|------|------|------|------|------|
| Staff-O-Life | 6958 | Jasper | guaranteed found | 0.26 | 0.08 | 0.16 | 0.34 | 0.4 | 10.0 | 10.0 | --- |
| Conrad Batts | 6958 | Jasper | guaranteed found | --- | --- | --- | --- | --- | 9.4 | 13.7 | --- |
| Daybreak Tennessee Brown Phosphate Rock | 6976 | Dale | guaranteed found | --- | --- | --- | --- | --- | --- | --- | 32.0 |
| Charles Schauf ³⁷ | 6976 | Dale | guaranteed found | --- | --- | --- | --- | --- | --- | --- | 32.8 |
| S. O. Springer | 6976 | Royal Center | guaranteed found | --- | --- | --- | --- | --- | --- | --- | 33.5 |
| Mogul Corn & Wheat Fertilizer | 6983 | Dubois | guaranteed found | 0.66 | 0.07 | 0.13 | 0.77 | 0.8 | 12.0 | --- | --- |
| Edw. Hammerlein | 6983 | Dubois | guaranteed found | --- | --- | --- | --- | 0.9 | 12.0 | 8.5 | --- |
| Fuhrer Tobacco & Snuff Company, The, Booneville, Ind. | 6967 | Boonville | guaranteed found | 1.07 | 0.01 | 0.26 | 0.66 | 1.34 | 5.0 | --- | --- |
| Tobacco Flour | 6967 | Boonville | guaranteed found | --- | --- | --- | --- | --- | 7.1 | --- | --- |
| *Fuhrer Tobacco & Snuff Co. | 6967 | Boonville | guaranteed found | --- | --- | --- | --- | --- | --- | --- | --- |
| Fox Chemical Company, Louisville, Ky. | 5872 | New Augusta | guaranteed found | 0.20 | 0.11 | 0.12 | 0.17 | 0.4 | 1.0 | 13.0 | --- |
| Fox Soil Builder | 5872 | New Augusta | guaranteed found | --- | --- | --- | --- | 0.6 | 1.0 | 14.2 | 2.1 |
| Joseph E. Bell ³⁵ | 5873 | Edinburg | guaranteed found | 0.28 | 0.15 | 0.28 | 0.49 | 0.71 | 1.2 | 0.7 | 11.2 |
| Fox Clay Land Crop Grower | 5873 | Edinburg | guaranteed found | --- | --- | --- | --- | --- | 1.2 | 0.7 | 11.2 |
| *W. J. Morris | 5881 | Avilla | guaranteed found | 0.05 | 0.05 | 0.12 | 0.38 | 0.22 | 0.6 | 1.1 | 11.0 |
| Fox Blood, Bone Phosphate & Potash | 5881 | Avilla | guaranteed found | 0.21 | 0.01 | 0.08 | 0.20 | 0.30 | 0.5 | 0.8 | 12.2 |
| *F. C. Yiser | 5881 | Comersville | guaranteed found | 0.32 | 0.12 | 0.23 | 0.44 | 0.7 | 1.1 | 11.6 | 6.6 |
| *Frank Cameron | 5881 | Sullivan | guaranteed found | 0.07 | 1.00 | 0.33 | 0.17 | 0.5 | 0.9 | 11.0 | 5.3 |
| *Dix Lumber Co. | 5881 | Scottsburg | guaranteed found | --- | --- | --- | --- | --- | --- | --- | --- |
| W. D. Coleman | 5881 | Scottsburg | guaranteed found | --- | --- | --- | --- | --- | --- | --- | --- |
| Fox Ideal Fertilizer 1916 | 6464 | Sellersburg | guaranteed found | 0.18 | 0.03 | 0.17 | 0.38 | 0.4 | 0.5 | 11.5 | --- |
| Robert McCurdy | 6464 | Sellersburg | guaranteed found | --- | --- | --- | --- | --- | 12.2 | 8.7 | --- |
| Fox Decatur County Fertilizer | 6472 | Greensburg | guaranteed found | 0.13 | 0.05 | 0.12 | 0.18 | 0.3 | 0.5 | 17.4 | 1.7 |
| *A. F. Brockelmeier | 6472 | Westport | guaranteed found | 0.15 | 0.03 | 0.03 | 0.09 | 0.21 | 0.3 | 0.4 | 16.3 |
| *A. F. Brockelmeier | 6472 | Greensburg | guaranteed found | 0.14 | 0.03 | 0.07 | 0.06 | 0.24 | 0.3 | 17.4 | 0.6 |
| A. F. Brockelmeier | 6472 | Greensburg | guaranteed found | --- | --- | --- | --- | --- | 0.4 | 0.5 | 11.5 |
| Early Harvest Wheat & Corn Maker | 6948 | Vevay | guaranteed found | 0.18 | 0.02 | 0.15 | 0.25 | 0.35 | 0.6 | 0.5 | 12.8 |
| J. S. Spencer | 6948 | Vevay | guaranteed found | 0.20 | 0.01 | 0.14 | 0.15 | 0.35 | 0.5 | 12.9 | 6.7 |
| A. G. Blackman | 6948 | Pekin | guaranteed found | --- | --- | --- | --- | --- | 0.4 | 0.5 | 12.5 |
| Fox Clay Land Special | 6950 | Jasper | guaranteed found | 0.25 | 0.03 | 0.08 | 0.11 | 0.39 | 0.4 | 0.3 | 12.0 |
| Wm. E. Fekeler | 6950 | Jasper | guaranteed found | --- | --- | --- | --- | --- | 0.4 | 10.0 | --- |
| Fox World Feeder | 6952 | Indianapolis | guaranteed found | 0.03 | 0.22 | 0.09 | 0.16 | 0.34 | 0.5 | 10.6 | 12.0 |
| John Robinson ⁴⁰ | 6952 | Indianapolis | guaranteed found | --- | --- | --- | --- | --- | --- | --- | --- |
| Fox Wonder-Worker | 6953 | Salem | guaranteed found | --- | --- | --- | --- | --- | 14.0 | --- | --- |
| Salem Co-operative Association | 6953 | Salem | guaranteed found | --- | --- | --- | --- | 0.15 | 0.35 | 0.15 | 3.5 |
| Globe Fertilizer Company, Louisville, Ky. | 2720 | French Lick | guaranteed found | --- | --- | --- | --- | --- | 14.0 | --- | --- |
| Globe Acid Phosphate | 2720 | French Lick | guaranteed found | --- | --- | --- | --- | --- | 13.4 | 7.8 | --- |
| *H. C. Burton | 3308 | Parr | guaranteed found | --- | --- | --- | --- | --- | 16.0 | --- | --- |
| Globe High Grade Acid Phosphate | 3308 | Parr | guaranteed found | --- | --- | --- | --- | --- | 10.2 | 13.7 | --- |
| *Amos Davison ⁴¹ | 3308 | Parr | guaranteed found | --- | --- | --- | --- | --- | --- | --- | --- |
| Globe Raw Bone | 3343 | Boonville | guaranteed found | 0.09 | 1.71 | 1.83 | 0.22 | 3.68 | 3.7 | --- | 22.0 |
| Boonville Implement Co. ⁴² | 3343 | Boonville | guaranteed found | --- | --- | --- | --- | --- | --- | --- | 20.3 |
| Globe Grain & Grass Grower | 4969 | Plainville | guaranteed found | 0.08 | 0.13 | 0.12 | 0.27 | 0.33 | 0.4 | 1.0 | 11.0 |
| *T. E. Littell & Son | 4969 | Plainville | guaranteed found | --- | --- | --- | --- | --- | 0.6 | 1.0 | 11.1 |
| Schenk Bros. & Korrsel | 4269 | Evansville | guaranteed found | 0.04 | --- | 0.11 | 0.35 | 0.15 | 0.3 | 1.0 | 11.3 |

³⁸ Sample received in the spring
³⁹ Purchased from Dawes & Dawes, Rich Valley, Ind.
⁴⁰ Purchased from Wm. Springer, Greenwood, Ind.
⁴¹ Purchased from C. D. Lakin, Refund (see page 30)
⁴² Sample to Mfr. Sample contains approx. 128 lbs. sand per ton
 (see page 32)

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. BB | Sample taken at | Nitrogen, N | | | | | | Potash, K ₂ O, soluble in water, per cent. | Phosphoric acid, P ₂ O ₅ | | |
|---|--------------|-------------------|-----------------|--|--|--|---|------------------|---------------------------------------|---|--|------|------|
| | | | | Water soluble in nitrates and ammonia salts, per cent. | Active water insoluble or organic, per cent. | Inactive water insoluble or organic, per cent. | Total water soluble and active, per cent. | Total, per cent. | Soluble and reprecipitated, per cent. | | Total, per cent. | | |
| | | | | | | | | | | | | | |
| Globe Fertilizer Company, Louisville, Ky. | | | | | | | | | | | | | |
| Globe Money-Maker | 5884 | --- | --- | guaranteed | 0.10 | 0.07 | 0.16 | 0.17 | 0.33 | 0.4 | 13.0 | --- | --- |
| *M. McCarty | 5884 | 7141 | Cutler | found | 0.15 | 0.03 | 0.09 | 0.23 | 0.37 | 0.5 | 13.2 | 3.5 | 13.2 |
| W. H. McClain ⁴³ | 5884 | 7734 | Greenwood | found | 0.28 | 0.14 | 0.31 | 0.47 | 0.73 | 0.5 | 12.5 | 4.3 | 12.5 |
| Globe Clay Land Crop Grower | 5885 | --- | --- | guaranteed | 0.14 | 0.01 | 0.14 | 0.21 | 0.29 | 0.7 | 12.4 | 2.9 | 12.4 |
| *Louis Katterhony | 5885 | 6877 | Huntingburg | found | 0.14 | 0.01 | 0.14 | 0.21 | 0.29 | 0.4 | 15.0 | 0.7 | 15.0 |
| Globe Grain-O-Phosphate | 5890 | --- | --- | guaranteed | 0.14 | 0.01 | 0.14 | 0.21 | 0.29 | 0.5 | 15.7 | 0.7 | 15.7 |
| C. S. Taylor | 5890 | 7767 | Vevay | found | 0.14 | 0.01 | 0.14 | 0.21 | 0.29 | 2.4 | 10.0 | --- | --- |
| Globe Golden Harvest | 5891 | --- | --- | guaranteed | 0.19 | 0.49 | 0.38 | 0.34 | 2.06 | 2.4 | 9.3 | 6.8 | 9.3 |
| *Edward Hemmerlein | 5891 | 6860 | Dubois | found | 0.18 | 0.06 | 0.12 | 0.24 | 0.36 | 0.4 | 11.0 | --- | --- |
| Globe Blood, Bone Phosphate & Potash | 5892 | --- | --- | guaranteed | 0.22 | 0.11 | 0.15 | 0.33 | 0.37 | 0.7 | 12.4 | 5.4 | 12.4 |
| *Pickens & Brengle | 5892 | 6806 | Orleans | found | 0.11 | 0.10 | 0.11 | 0.28 | 0.32 | 0.6 | 10.9 | 7.6 | 10.9 |
| *John Wallace | 5892 | 6824 | Rushville | found | 0.03 | 0.01 | 0.18 | 0.38 | 0.22 | 0.6 | 11.1 | 7.6 | 11.1 |
| *Ross Romen ⁴⁴ | 5892 | 7192 | Paris | found | 0.22 | 0.11 | 0.11 | 0.27 | 0.53 | 0.6 | 11.6 | 6.0 | 11.6 |
| E. H. Sears | 5892 | 7814 | Knightsdown | found | 0.14 | 0.12 | 0.12 | 0.24 | 0.26 | 0.8 | 11.0 | 6.1 | 11.0 |
| Jones & Williams | 5892 | 7833 | Richmond | found | 0.11 | 0.03 | 0.16 | 0.50 | 0.30 | 0.8 | 9.0 | 7.0 | 9.0 |
| Sylvanus McKinley | 5892 | 7872 | Borden | found | 0.11 | 0.03 | 0.16 | 0.50 | 0.30 | 0.4 | 12.0 | --- | --- |
| Globe Bone Phosphate Dust | 5895 | --- | --- | guaranteed | 0.11 | 0.03 | 0.16 | 0.50 | 0.30 | 0.4 | 12.0 | --- | --- |
| *J. H. Strack | 5895 | 7239 | New Albany | found | 0.11 | 0.03 | 0.16 | 0.50 | 0.30 | 0.4 | 12.0 | --- | --- |
| Globe Gold Medal Mixture 1916 | 6455 | --- | --- | guaranteed | 0.11 | 0.18 | 0.14 | 0.25 | 0.25 | 2.0 | 12.5 | 7.7 | 12.5 |
| Boonville Implement Co. | 6455 | 7562 | Boonville | found | 0.12 | 0.18 | 0.28 | 0.32 | 1.58 | 1.9 | 12.5 | 2.6 | 12.5 |
| Globe Soluble Vegetable Manure 1916 | 6456 | --- | --- | guaranteed | 0.18 | 0.03 | 0.11 | 0.28 | 0.32 | 0.4 | 0.5 | 9.0 | 9.0 |
| *Geo. Gerlach | 6456 | 7056 | Chrisney | found | 0.18 | 0.03 | 0.11 | 0.28 | 0.32 | 0.6 | 0.7 | 9.4 | 10.5 |
| Globe Grain Fertilizer | 6458 | 6870 | Jasper | found | 0.20 | 0.04 | 0.17 | 0.29 | 0.41 | 0.7 | 0.6 | 11.9 | 11.9 |
| *Geo. P. Wagner | 6458 | --- | --- | guaranteed | 0.18 | 0.06 | 0.30 | 0.56 | 0.54 | 1.1 | 0.9 | 9.6 | 9.6 |
| Globe Good Luck Fertilizer | 6459 | 6878 | Huntingburg | found | 0.11 | 0.18 | 0.26 | 0.65 | 0.55 | 1.2 | 0.5 | 3.4 | 3.4 |
| *Louis Katterhony | 6461 | --- | --- | guaranteed | 0.14 | 0.34 | 0.24 | 0.38 | 0.72 | 1.1 | 12.0 | 10.6 | 12.0 |
| Eagle Corn & Wheat Fertilizer | 6461 | 6936 | Troy | found | 0.14 | 0.34 | 0.24 | 0.38 | 0.72 | 0.8 | 8.0 | 10.6 | 8.0 |
| *M. A. Eberhardt | 6461 | 7240 | New Albany | found | 0.08 | 0.04 | 0.10 | 0.38 | 0.22 | 0.4 | 0.5 | 9.0 | 9.0 |
| Globe King Fertilizer | 6803 | 7132 | Petersburg | found | 0.06 | 0.19 | 0.35 | 0.25 | 0.6 | 0.5 | 11.0 | 7.9 | 11.0 |
| *C. J. Gladish & Sons | 6807 | 7561 | Petersburg | found | 0.20 | 0.41 | 0.22 | 0.37 | 0.83 | 1.2 | 0.5 | 9.3 | 11.2 |
| Globe Tip Top Grain Grower | 6807 | --- | --- | guaranteed | 0.17 | 0.02 | 0.17 | 0.14 | 0.33 | 0.4 | 0.5 | 11.5 | 11.5 |
| *C. J. Gladish & Sons | 6807 | 7133 | Boonville | found | 0.17 | 0.02 | 0.17 | 0.14 | 0.33 | 0.5 | 0.4 | 12.5 | 9.4 |
| Globe Complete Corn & Wheat Grower | 6913 | 6859 | Dubois | found | 0.03 | 0.01 | 0.15 | 0.41 | 0.19 | 0.6 | 0.4 | 12.6 | 6.2 |
| *Edward Hemmerlein | 6913 | --- | --- | guaranteed | 0.03 | 0.01 | 0.15 | 0.41 | 0.19 | 0.6 | 0.4 | 12.6 | 6.2 |
| Fagle Fertilizer | 6939 | --- | --- | guaranteed | 0.03 | 0.01 | 0.15 | 0.41 | 0.19 | 0.6 | 0.4 | 12.6 | 6.2 |
| Pickens & Brengle | 6939 | 7974 | Orleans | found | 0.03 | 0.01 | 0.15 | 0.41 | 0.19 | 0.6 | 0.4 | 12.6 | 6.2 |
| A-1 Braden Formula | 6941 | --- | --- | guaranteed | 0.03 | 0.01 | 0.15 | 0.41 | 0.19 | 0.6 | 0.4 | 12.6 | 6.2 |
| E. H. Sears | 6941 | 7813 | Knightsdown | found | 0.03 | 0.01 | 0.15 | 0.41 | 0.19 | 0.6 | 0.4 | 12.6 | 6.2 |

| | | | | | | | | | | | |
|--|------|------|-----------------|------------|------|------|------|------|------|-----|------|
| Globe Grain Maker | 6945 | 7848 | Scottsburg | guaranteed | 0.09 | 0.13 | 0.12 | 0.16 | 0.34 | 0.5 | 14.0 |
| Scottsburg Milling Co. | 6945 | 7848 | Scottsburg | found | 0.09 | 0.13 | 0.12 | 0.16 | 0.34 | 0.5 | 14.0 |
| Globe Good Luck Meal Mixture | 7002 | 7597 | Westport | guaranteed | 0.28 | 0.21 | 0.11 | 0.20 | 0.60 | 0.8 | 10.0 |
| Westport Hardware Co. | 7002 | 7597 | Westport | found | 0.34 | 0.01 | 0.22 | 0.13 | 0.57 | 0.7 | 12.8 |
| Scottsburg Milling Co. | 7002 | 7847 | Scottsburg | found | 0.34 | 0.01 | 0.22 | 0.13 | 0.57 | 0.7 | 12.4 |
| Goldschmidt Fertilizer Company, Marion, Ind. | 5646 | 7883 | Marion | guaranteed | 0.20 | 0.76 | 3.91 | 1.43 | 4.87 | 6.0 | 11.0 |
| Goldschmidt Special | 5646 | 7883 | Marion | found | 0.20 | 0.76 | 3.91 | 1.43 | 4.87 | 6.3 | 14.1 |
| Goodrich, Wm. J., Royal Center, Ind. | 6131 | 7366 | Royal Center | guaranteed | 0.39 | | 0.40 | 0.21 | 0.79 | 1.0 | 3.0 |
| General Crop Grower | 6131 | 7366 | Royal Center | found | 0.39 | | 0.40 | 0.21 | 0.79 | 1.0 | 3.1 |
| *Wm. J. Goodrich | 6922 | 7365 | Royal Center | guaranteed | | | | | | | 7.9 |
| Goodrich Twelve Two | 6922 | 7365 | Royal Center | found | | | | | | | 1.8 |
| *Wm. J. Goodrich | 6922 | 7365 | Royal Center | found | | | | | | | 2.0 |
| (Groves Fertilizer Works, The, (Joslin-Schmidt Co.), Cincinnati, Ohio. | 5909 | 6828 | Paoli | guaranteed | | | | | | | 14.0 |
| Monarch Brand | 5909 | 6828 | Paoli | found | | | | | | | 14.4 |
| *William Cox | 5909 | 7379 | Salem | guaranteed | | | | | | | 14.9 |
| Salem Co-operative Association | 5910 | 6957 | East Germantown | guaranteed | 0.24 | 0.43 | 0.55 | 0.38 | 1.32 | 1.7 | 12.0 |
| Ammoniated Phosphate | 5910 | 6957 | East Germantown | found | 0.15 | 0.72 | 0.69 | 0.37 | 1.53 | 1.9 | 12.1 |
| *H. L. Rodenberg ⁴⁵ | 5910 | 7246 | New Albany | guaranteed | 0.07 | 0.68 | 0.37 | 0.38 | 1.12 | 1.5 | 12.0 |
| *H. C. Bornwasser Implement Co. | 5910 | 7761 | Rising Sun | guaranteed | | | | | | | 12.3 |
| W. P. McHenry | 5912 | 7306 | Osgood | guaranteed | | | | | | | 1.8 |
| 16% Acid Phosphate | 5912 | 7306 | Osgood | found | | | | | | | 16.7 |
| *Osgood Grain Co. | 5912 | 7765 | Markland | guaranteed | | | | | | | 1.5 |
| M. V. Turner | 5914 | 7351 | Rising Sun | guaranteed | 0.38 | 0.07 | 0.25 | 0.30 | 0.70 | 0.8 | 16.3 |
| Economy Brand | 5914 | 7351 | Rising Sun | found | 0.08 | 0.38 | 0.16 | 0.18 | 0.62 | 0.8 | 1.0 |
| *J. H. Knigga | 5914 | 7760 | Rising Sun | guaranteed | | | | | | | 10.6 |
| J. H. Knigga | 6064 | 7843 | Crothersville | guaranteed | 0.07 | 0.08 | 3.33 | 0.82 | 3.48 | 4.3 | 0.8 |
| Groves Raw Bone | 6064 | 7843 | Crothersville | found | 0.07 | 0.08 | 3.33 | 0.82 | 3.48 | 4.3 | 0.9 |
| John Niehmiller | 6193 | 7770 | Morris | guaranteed | 0.07 | 0.22 | 0.20 | 0.31 | 0.49 | 0.8 | 11.3 |
| Harvest King | 6193 | 7770 | Morris | found | 0.07 | 0.22 | 0.20 | 0.31 | 0.49 | 0.8 | 1.0 |
| Jos. Weisenback | 6378 | 7659 | Ferdinand | guaranteed | 0.08 | 0.24 | 0.30 | 0.28 | 0.62 | 0.9 | 8.5 |
| Bone and Phosphate | 6378 | 7659 | Ferdinand | found | 0.11 | 0.14 | 0.33 | 0.29 | 0.61 | 0.9 | 1.2 |
| Ben Bolie & Sons | 6378 | 7757 | Rising Sun | guaranteed | 0.07 | 0.35 | 0.25 | 0.23 | 0.65 | 0.8 | 10.0 |
| J. H. Knigga | 6713 | 7305 | Osgood | guaranteed | 0.07 | 0.35 | 0.25 | 0.23 | 0.65 | 0.8 | 10.0 |
| Grain Growers | 6713 | 7758 | Rising Sun | guaranteed | 0.04 | 0.31 | 0.20 | 0.25 | 0.57 | 0.8 | 12.7 |
| *Osgood Grain Co. | 6713 | 7758 | Rising Sun | found | 0.04 | 0.31 | 0.20 | 0.25 | 0.57 | 0.8 | 1.0 |
| W. P. McHenry | 6852 | 7701 | Jasper | guaranteed | | 0.24 | 0.11 | 0.05 | 0.35 | 0.4 | 12.8 |
| Ideal Crop Grower | 6852 | 7701 | Jasper | found | | 0.24 | 0.11 | 0.05 | 0.35 | 0.4 | 1.0 |
| Victoria Milling Co. | 6852 | 7701 | Jasper | found | | 0.24 | 0.11 | 0.05 | 0.35 | 0.4 | 12.6 |
| Hess & Bro. Inc., S. M., Philadelphia, Pa. | 4681 | 7541 | Hausstadt | guaranteed | | | | | | | 1.1 |
| S. M. Hess & Bro's, Keystone Phosphate | 4681 | 7541 | Hausstadt | found | 0.14 | 0.36 | 0.30 | 0.30 | 0.80 | 0.8 | 8.0 |
| Frank Singer | 4681 | 7884 | Jonesboro | guaranteed | 0.18 | 0.19 | 0.37 | 0.26 | 0.74 | 1.1 | 1.1 |
| O. O. Coal Co. | 6486 | 7540 | Hausstadt | guaranteed | 0.07 | 0.43 | 0.31 | 0.29 | 0.81 | 0.8 | 1.3 |
| Standard Super Phosphate | 6486 | 7540 | Hausstadt | found | 0.07 | 0.43 | 0.31 | 0.29 | 0.81 | 0.8 | 10.6 |
| Frank Singer | 6486 | 6885 | Milroy | guaranteed | 0.12 | 0.33 | 0.41 | 0.27 | 0.83 | 1.1 | 1.1 |
| Special Corn Manure 1916 | 6486 | 6885 | Milroy | found | 0.12 | 0.33 | 0.41 | 0.27 | 0.83 | 1.1 | 1.0 |
| *C. O. Patton | 6491 | 7232 | Henryville | guaranteed | 0.22 | 0.92 | 0.35 | 0.30 | 1.50 | 1.8 | 1.0 |
| Ammoniated Super Phosphate | 6491 | 7232 | Henryville | found | 0.22 | 0.92 | 0.35 | 0.30 | 1.50 | 1.8 | 8.0 |
| *Henryville Supply Co. | 6491 | 7232 | Henryville | found | 0.22 | 0.92 | 0.35 | 0.30 | 1.50 | 1.8 | 2.8 |

* Sample received in the spring

⁴³ Purchased from W. D. McCartney⁴⁴ Purchased from C. D. Lakin⁴⁵ Purchased from James A. Boyd, Cambridge City, Ind.

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. B.B. | Sample taken at | Nitrogen, N | | | | | Potash, K ₂ O, soluble in water, per cent. | Phosphoric acid, P ₂ O ₅ | |
|---|--------------|---------------------|-----------------|---|------------------------|-------------------------------------|---|------------------|---|--|---------------------------------|
| | | | | Water soluble in nitrate and ammonia salts, per cent. | Active water per cent. | Inert water or insoluble, per cent. | Total water soluble and active, per cent. | Total, per cent. | | Insoluble, per cent. | Soluble and reverted, per cent. |
| Hess & Bro., Inc., S. M., Subsidiary of the American Agricultural Chemical Co., Philadelphia, Pa. | | | | | | | | | | | |
| Indiana Special Phosphate | | | | | | | | | | | |
| Albert McIntosh | 6677 | 7385 | Orleans | 0.27 | 0.90 | 0.48 | 0.25 | 1.65 | 1.6 | 12.0 | 2.0 |
| Special Corn Manure, 1916 | 6679 | 7283 | Henryville | 0.14 | 0.05 | 0.55 | 0.23 | 0.74 | 0.8 | 1.0 | 10.0 |
| *Henryville Supply Co. | 6680 | 7841 | Henryville | 0.13 | 0.33 | 0.42 | 0.32 | 0.58 | 0.8 | 1.0 | 10.0 |
| Wheat & Grass Manure, 1916 | 6680 | 7841 | Henryville | 0.13 | 0.33 | 0.42 | 0.32 | 0.58 | 1.2 | 1.1 | 10.6 |
| Henryville Supply Co. | 6685 | 7840 | Henryville | 0.09 | 0.23 | 1.16 | 0.52 | 1.48 | 1.6 | 27.0 | 1.3 |
| Special Ground Bone | 6685 | 7840 | Henryville | 0.09 | 0.23 | 1.16 | 0.52 | 1.48 | 2.0 | 31.2 | 1.0 |
| Henryville Supply Co. | 6685 | 7840 | Henryville | 0.09 | 0.23 | 1.16 | 0.52 | 1.48 | 2.0 | 31.2 | 1.0 |
| Hirsh, Stein & Company, ⁴⁶ Chicago, Ill. | 4180 | | | | | | | | | | |
| Calumet Brand Special Pure Bone Meal | 4180 | 7499 | Brookville | 0.11 | | 0.31 | 0.28 | 0.42 | 0.8 | 29.7 | 2.0 |
| J. H. Masters & Son | 4201 | | | | | | | | | | |
| Calumet Brand Pure Raw Bone Meal | 4201 | 7653 | Dale | 0.07 | 0.18 | 2.57 | 0.88 | 2.82 | 3.7 | 20.0 | 1.0 |
| Edwin Wedeking ⁴⁷ | 4203 | | | | | | | | | | |
| "Calumet Brand Grain Grower" | 4203 | 7041 | Kendallville | 0.44 | 0.33 | 0.35 | 0.38 | 1.12 | 1.6 | 2.0 | 8.0 |
| *C. S. Southwick | 4543 | 7304 | Osgood | 0.94 | 0.02 | 0.33 | 0.33 | 1.34 | 1.7 | 1.2 | 10.0 |
| Calumet Brand Bone Black Grain Grower | 4543 | | | | | | | | | | |
| *John Eckert | 4785 | 6843 | French Lick | | | | | | | | |
| Calumet Brand 14% Acid Phosphate | 4785 | | | | | | | | | | |
| *W. F. Wright | 5672 | 7655 | Tell City | 0.08 | 0.06 | 1.95 | 0.51 | 2.09 | 2.0 | 14.9 | 0.8 |
| Calumet Brand Ammoniated Extra Bone Meal | 5672 | | | | | | | | | | |
| A. Graves Sons ⁴⁸ | 6049 | 7250 | Lexington | 0.29 | 0.03 | 0.22 | 0.16 | 0.51 | 0.7 | 3.0 | 1.0 |
| *W. F. Wright | 6049 | 7250 | Lexington | 0.13 | 0.01 | 0.19 | 0.27 | 0.53 | 0.6 | 2.7 | 13.3 |
| *F. M. Campbell | 6382 | 6958 | East Germantown | 0.23 | 0.23 | 0.19 | 0.45 | 0.45 | 0.4 | 1.0 | 10.0 |
| Calumet Brand Bone Phosphate & Potash Mixture | 6382 | 7043 | Kendallville | 0.21 | 0.15 | 0.30 | 0.34 | 0.66 | 1.0 | 1.1 | 2.8 |
| *Sourbeer & Rodenberg | 6382 | 7344 | Goodland | 0.13 | 0.01 | 0.16 | 0.50 | 0.80 | 0.8 | 0.9 | 11.1 |
| *C. S. Southwick | 6382 | 7344 | Goodland | 0.13 | 0.01 | 0.16 | 0.50 | 0.80 | 0.8 | 0.9 | 11.1 |
| *H. B. Montross ⁴⁹ | 6385 | 7343 | Goodland | | | | | | | | |
| Calumet Brand 16% Acid Phosphate | 6385 | | | | | | | | | | |
| *Wm. Hartsock ⁴³ | 6386 | 7395 | Brookville | 0.24 | 0.16 | 0.10 | 0.40 | 0.40 | 0.4 | 17.8 | 0.3 |
| Calumet Brand Bone & Phosphate Mixture | 6386 | 7662 | Ferdinand | 0.21 | 0.22 | 0.17 | 0.43 | 0.6 | 0.5 | 15.0 | 8.0 |
| *J. H. Masters & Son | 6386 | | | | | | | | | | |
| Weyer & Flick | 6779 | 6661 | Wheatfield | 0.09 | 0.19 | 0.19 | 0.23 | 0.47 | 0.6 | 15.0 | 1.0 |
| Calumet Ammoniated Bone Phosphate | 6779 | | | | | | | | | | |
| *H. W. Marble | 6779 | 6795 | Bedford | 0.08 | 0.20 | 0.19 | 0.23 | 0.47 | 0.7 | 15.0 | 1.3 |
| *Dobbins & Ramsey | 6779 | 6923 | Kitchel | 0.08 | 0.34 | 0.19 | 0.19 | 0.61 | 0.8 | 15.0 | 2.5 |
| *Kitchel Elevator Co. | 6779 | 6982 | Wabash | 0.13 | 0.26 | 0.17 | 0.24 | 0.53 | 0.8 | 15.3 | 2.1 |
| *H. E. Pearson | 6779 | 7054 | Rockport | 0.13 | 0.26 | 0.17 | 0.24 | 0.53 | 0.8 | 15.3 | 2.1 |
| *F. W. Rinsdatt | 6779 | 7054 | Rockport | 0.13 | 0.26 | 0.17 | 0.24 | 0.53 | 0.8 | 15.3 | 2.1 |

| | | | | | | | | | | | | |
|--|------|---------------|------------|------|------|------|------|------|-----|------|------|-----|
| Calumet Hummer Grain Grower | 6780 | Bedford | guaranteed | 0.09 | 0.05 | 0.31 | 0.45 | 0.45 | 0.8 | 0.5 | 10.0 | 1.0 |
| *Dobbins & Ramsey | 6780 | Bedford | found | 0.16 | 0.19 | 0.22 | 0.43 | 0.57 | 1.0 | 0.5 | 10.9 | 0.8 |
| *C. S. Southwick | 6780 | Kendallville | found | 0.13 | 0.15 | 0.22 | 0.47 | 0.53 | 1.0 | 0.5 | 11.0 | 2.6 |
| *Spriesterback Bros. | 6780 | Charlestown | found | 0.04 | 0.10 | 0.25 | 0.51 | 0.39 | 0.9 | 0.6 | 11.2 | 1.2 |
| A. M. Bohner | 6780 | Jasper | found | 0.04 | 0.10 | 0.25 | 0.51 | 0.39 | 0.8 | 0.5 | 11.2 | 2.7 |
| Wedeking's Tobacco Fertilizer | 6919 | Rockport | guaranteed | 0.19 | 0.19 | 0.42 | 0.38 | 0.8 | 0.5 | 10.0 | 1.0 | 1.0 |
| *F. W. Rimstidt | 6919 | Rockport | found | 0.19 | 0.19 | 0.42 | 0.38 | 0.8 | 0.5 | 10.0 | 1.0 | 2.6 |
| Hopkins Fertilizer Company, New Albany, Ind. | | | | | | | | | | | | |
| Hopkins High Grade Acid Phosphate | 4066 | Bedford | guaranteed | 0.13 | 0.01 | 0.21 | 0.05 | 0.35 | 0.4 | 0.9 | 14.3 | 3.0 |
| *Opal Jackson | 4905 | Bedford | found | 0.24 | 0.01 | 0.11 | 0.24 | 0.36 | 0.6 | 1.3 | 10.5 | 1.5 |
| Hopkins Climax Acid Phosphate | 6139 | Bedford | guaranteed | 0.11 | 0.14 | 0.10 | 0.15 | 0.35 | 0.5 | 1.0 | 11.7 | 1.0 |
| *Opal Jackson | 6139 | Bedford | found | 0.31 | 0.05 | 0.14 | 0.30 | 0.50 | 0.7 | 1.1 | 10.4 | 2.1 |
| *John Higdon | 7201 | Charlestown | found | 0.20 | 0.01 | 0.09 | 0.30 | 0.30 | 0.6 | 1.1 | 11.6 | 1.0 |
| Frank McCullough | 6139 | Charlestown | found | 0.42 | 0.39 | 0.16 | 0.36 | 0.94 | 1.3 | 12.7 | 2.0 | 1.0 |
| Indiana Special No. 2 | 6210 | Scottsburg | guaranteed | 0.31 | 0.95 | 0.08 | 0.26 | 1.34 | 1.8 | 12.8 | 0.4 | 0.4 |
| *John Higdon | 6210 | Scottsburg | found | 0.42 | 0.38 | 0.54 | 0.46 | 1.34 | 1.8 | 12.8 | 0.4 | 0.4 |
| Wheat & Corn Grower No. 2 | 6317 | Dillsboro | guaranteed | 0.18 | 0.03 | 0.24 | 0.55 | 0.45 | 1.0 | 11.9 | 1.8 | 1.0 |
| *Pieper & Smith | 6307 | Vernon | found | 0.28 | 0.01 | 0.25 | 0.46 | 0.54 | 1.0 | 12.3 | 0.3 | 0.3 |
| W. R. Dryden | 6307 | Borden | found | 0.03 | 0.01 | 0.33 | 0.60 | 0.40 | 1.0 | 1.0 | 6.0 | 6.0 |
| P. C. Piers | 6307 | Matthews | guaranteed | 0.48 | 0.58 | 0.82 | 0.22 | 1.38 | 1.6 | 1.4 | 10.5 | 2.9 |
| W. L. Allison | 6307 | Scottsburg | found | 0.76 | 0.23 | 0.37 | 0.64 | 1.36 | 2.0 | 1.2 | 5.5 | 8.2 |
| Favorite | 6308 | North Madison | found | 0.57 | 0.03 | 0.33 | 0.77 | 0.93 | 1.7 | 1.3 | 5.3 | 8.4 |
| *John Higdon | 6308 | Scottsburg | guaranteed | 0.10 | 0.08 | 0.17 | 0.45 | 0.35 | 0.8 | 2.9 | 8.1 | 2.1 |
| Edw. Jeffries ⁵⁰ | 6308 | Dillsboro | found | 0.17 | 0.07 | 0.26 | 0.24 | 0.24 | 0.4 | 3.0 | 7.0 | 1.0 |
| John A. Higdon ⁵¹ | 6308 | Helmshurg | guaranteed | 0.25 | 0.66 | 0.28 | 0.51 | 1.19 | 1.7 | 1.2 | 7.9 | 2.3 |
| Tankage & Phosphate Special | 6309 | Charlestown | found | 0.14 | 0.07 | 0.19 | 0.21 | 0.21 | 0.4 | 1.1 | 14.7 | 0.3 |
| *Pieper & Smith | 6309 | Tell City | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 0.8 | 2.0 | 8.0 | 1.0 |
| W. R. Dryden | 6309 | Dillsboro | found | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| Ira Yoder | 6309 | Dillsboro | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| Half & Half No. 1 | 6310 | Charlestown | found | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| *W. J. Barnett | 6310 | Tell City | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| A. Graves Sons | 6310 | Dillsboro | found | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| Pieper & Smith | 6310 | Dillsboro | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| Truck Grower No. 1 | 6482 | New Albany | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| *W. L. Scott | 6482 | New Albany | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| Hopkins' Half Seven Three | 6666 | Centerville | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| Wm. Smoker | 6666 | Centerville | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| Blood, Bone & Phosphate No. 1 | 6704 | Crothersville | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| *The Rider Packing Co., Inc. | 6704 | Crothersville | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| Indiana Special No. 2 Fertilizer | 6968 | Charlestown | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| W. J. Barnett | 6968 | Charlestown | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| Hubbell Fertilizer Company, The L. W. Lockland, O. | | | | | | | | | | | | |
| Hubbell's Crop Maker | 6006 | Lebanon | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| *Snapp & Kirdley | 6006 | Lebanon | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| Hubbell's High Phosphate and Potash | 6007 | Rensselaer | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |
| *Joe Kanne ⁵³ | 6007 | Rensselaer | guaranteed | 0.29 | 0.33 | 0.48 | 0.62 | 0.62 | 1.1 | 2.2 | 7.9 | 2.1 |

⁵⁰ Sample received in the spring
⁵¹ Succeeded by the United Chemical & Organic Products Co.
⁵² Sample contains approx. 136 lbs. sand per ton (see page 32)
⁵³ Sample contains approx. 144 lbs. sand per ton (see page 33)
⁵⁴ Purchased from Goodland Grain Co.

⁵⁰ Purchased from G. A. Woods
⁵¹ Sample to Mfr. (see page 33)
⁵² Purchased from Dick Stinson
⁵³ Purchased from Stephen Kohley

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. RB | Sample taken at | Nitrogen, N | | | | | | Potash, K ₂ O, soluble in water, per cent. | Phosphoric acid, P ₂ O ₅ , per cent. | |
|---|--------------|-------------------|-----------------|--------------------------------|------------------------------------|-----------------------------------|-------------------------------------|---|------------------|---|--|------------------|
| | | | | Water soluble salts, per cent. | Water soluble inorganic, per cent. | Active water-insoluble, per cent. | Inactive water-insoluble, per cent. | Total water-soluble and active, per cent. | Total, per cent. | | Soluble and reprecipitated, per cent. | Total, per cent. |
| Independent Packers Fertilizer Company, The, Columbus, Ohio. | | | | | | | | | | | | |
| Number 1, Independent Favorite (1917). | | | | | | | | | | | | |
| *Chas. A. Burris ⁵⁴ | 6849 | 6961 | Centerville | guaranteed | 0.35 | 0.05 | 0.15 | 0.35 | 0.55 | 0.5 | 11.0 | --- |
| John McClain | 6849 | 7439 | Kitchel | found | 0.39 | 0.13 | 0.07 | 0.21 | 0.59 | 0.5 | 11.0 | 2.5 |
| Number 3, Corn Wheat Oats & Clover (1917) | 6850 | | | guaranteed | --- | --- | --- | --- | --- | 0.6 | 10.3 | 1.2 |
| McConaha Co. | 6850 | 7855 | Richmond | found | 0.50 | 0.02 | 0.13 | 0.25 | 0.65 | 0.5 | 8.0 | --- |
| Indianapolis Rendering Company, Indianapolis, Ind. | | | | | | | | | | 0.8 | 7.9 | 1.5 |
| Our Grain Grower | 3561 | | | | | | | | | | | |
| *Gerhardt Weyer & Co. | 6915 | 6915 | Ferdinand | guaranteed | 0.07 | 0.07 | 0.29 | 0.47 | 0.43 | 0.9 | 7.0 | 1.0 |
| Victoria Milling Co. | 3561 | 7700 | Jasper | found | 0.06 | 0.05 | 0.23 | 0.45 | 0.35 | 0.9 | 8.3 | 0.4 |
| Corn & Wheat Grower | 3562 | | | guaranteed | --- | --- | --- | --- | --- | 0.8 | 0.9 | 6.8 |
| *Victoria Milling Co. | 3562 | 6863 | Jasper | found | 0.11 | 0.04 | 0.32 | 0.43 | 0.47 | 0.8 | 2.0 | 8.0 |
| Rogers Bros. | 3562 | 7398 | Trevelac | found | 0.14 | 0.28 | 0.35 | 0.33 | 0.77 | 0.9 | 9.5 | 0.7 |
| Banner Bone Meal | 3808 | | | guaranteed | --- | --- | --- | --- | --- | 1.1 | 9.5 | 0.8 |
| L. D. Roberts | 7495 | | Brookville | found | 0.13 | 0.08 | 1.03 | 0.53 | 1.27 | 1.6 | --- | --- |
| G. A. Hillemeyer | 3808 | 7686 | Huntingburg | found | 0.11 | 0.08 | 1.27 | 0.24 | 1.46 | 1.7 | --- | --- |
| Our Half & Half | 4807 | | | guaranteed | --- | --- | --- | --- | --- | --- | --- | --- |
| Complete Manure | 5811 | 7496 | Brookville | found | 0.03 | 0.48 | 0.33 | 0.33 | 0.87 | 1.2 | 8.0 | 11.0 |
| *Victoria Milling Co. | 5811 | 6864 | Jasper | guaranteed | 0.08 | 0.14 | 0.36 | 0.52 | 0.48 | 1.0 | 9.0 | --- |
| L. D. Roberts | 5811 | 7497 | Brookville | found | 0.04 | 0.18 | 0.22 | 0.35 | 0.44 | 1.0 | 10.1 | 0.4 |
| 16% Acid Phosphate | 6186 | | | guaranteed | --- | --- | --- | --- | --- | 1.0 | 9.0 | 1.3 |
| *The Hatfield Palmer Co. | 6186 | 7111 | Washington | found | --- | --- | --- | --- | --- | --- | 16.0 | --- |
| Superphosphated Manure | 6238 | | | guaranteed | --- | --- | --- | --- | --- | --- | 10.0 | 1.4 |
| *E. M. Smith ⁵⁵ | 6238 | 6922 | Brookville | guaranteed | 0.15 | 0.02 | 0.40 | 0.53 | 0.57 | 1.0 | 10.0 | 1.0 |
| *The Hatfield Palmer Co. | 6238 | 7112 | Washington | found | 0.13 | 0.09 | 0.35 | 0.62 | 0.38 | 1.1 | 10.8 | 0.4 |
| Corn & Wheat Grower without Potash | 6277 | | | guaranteed | --- | --- | --- | --- | --- | 1.2 | 10.6 | 0.6 |
| *G. A. Hillemeyer | 6277 | 6873 | Huntingburg | found | 0.18 | 0.03 | 0.24 | 0.35 | 0.45 | 0.8 | 8.0 | --- |
| Soil Food | 6278 | | | guaranteed | --- | --- | --- | --- | --- | 0.5 | 9.2 | 0.5 |
| G. A. Hillemeyer | 6278 | 7685 | Huntingburg | found | 0.01 | --- | 0.27 | 0.62 | 0.28 | 0.8 | 5.0 | --- |
| Black Soil Formula | 6280 | | | guaranteed | --- | --- | --- | --- | --- | 0.6 | 7.9 | 0.7 |
| *Milford Grain & Milling Co. | 6280 | 7044 | Milford | found | 0.19 | 0.22 | 0.29 | 0.41 | --- | 0.4 | 3.0 | 5.0 |
| Humus Phosphate | 6380 | | | guaranteed | --- | --- | --- | --- | --- | 3.0 | 6.2 | 1.5 |
| Chas. Brauchla | 7444 | | Bath | found | 0.01 | 0.06 | 0.16 | 0.27 | 0.23 | 0.4 | 12.0 | --- |
| Gerhardt Weyer Co. | 6380 | 7656 | Ferdinand | found | --- | --- | 0.16 | 0.34 | 0.16 | 0.5 | 11.7 | 1.4 |
| International Agricultural Corporation, Cincinnati Works, Lockland, Ohio. | | | | | | | | | | | | |
| Buffalo Complete Fertilizer | 6549 | | | guaranteed | 0.22 | 0.33 | 0.26 | 0.19 | 1.31 | 1.6 | 8.0 | 1.0 |
| *B. E. Megusch | 6549 | 7164 | Spencer | found | --- | --- | --- | --- | --- | 1.5 | 1.0 | 8.1 |
| | | | | | | | | | | | | 1.1 |

| | | | | | | | | | | | | | | |
|------|--|------|-------------------|------------|------|------|------|------|------|-----|-----|------|-----|------|
| 6550 | Buffalo Crop Grower | 7091 | Hazleton | guaranteed | 0.09 | 0.50 | 0.24 | 0.17 | 0.83 | 0.8 | 1.0 | 8.0 | 1.0 | 1.0 |
| 6550 | *F. E. Curtner | 7091 | Hazleton | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6551 | Buffalo Ammoniated Phosphate | 6892 | Sardinia | guaranteed | 0.14 | 0.95 | 0.24 | 0.17 | 1.33 | 1.6 | 1.0 | 8.0 | 1.0 | 1.5 |
| 6551 | *Ray Damsion | 6892 | Sardinia | found | 0.32 | 0.88 | 0.28 | 0.22 | 1.48 | 1.7 | 1.0 | 10.7 | 2.2 | 1.7 |
| 6551 | *B. E. Meguscher | 7163 | Spencer | found | --- | --- | --- | --- | --- | --- | --- | 10.0 | 1.0 | 1.0 |
| 6725 | International Agricultural Corporation, Middle West Division, Cincinnati, Ohio. | 7163 | Spencer | guaranteed | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6725 | Buffalo Grain Grower | 7163 | Spencer | found | 0.02 | 0.52 | 0.20 | 0.16 | 0.74 | 0.8 | 1.0 | 13.0 | 2.0 | 2.0 |
| 6725 | *J. A. Berch & Son | 7437 | Liberty | found | 0.18 | 0.07 | 0.27 | 0.28 | 0.52 | 0.8 | 1.0 | 13.6 | 0.6 | 0.6 |
| 6854 | Hubbells Double Five | 6854 | Lebanon | guaranteed | --- | --- | --- | --- | --- | --- | --- | 13.5 | 2.9 | 2.9 |
| 6854 | *Snepp & Kirtley ⁵⁰ | 6854 | Lebanon | found | --- | --- | --- | --- | --- | --- | --- | 5.0 | 5.0 | 1.0 |
| 6854 | *Oscar Hauser ⁵¹ | 6854 | Rensselaer | found | --- | --- | --- | --- | --- | --- | --- | 4.8 | 5.1 | 0.6 |
| 6854 | *Frank Strook ⁵² | 6854 | Hudson | found | --- | --- | --- | --- | --- | --- | --- | 4.8 | 5.1 | 0.8 |
| 6854 | *John N. Erickson ⁵³ | 7064 | Brookston | found | --- | --- | --- | --- | --- | --- | --- | 4.8 | 5.2 | 0.8 |
| 6854 | *J. C. Phillips ⁵⁴ | 7370 | Star City | found | --- | --- | --- | --- | --- | --- | --- | 4.8 | 5.9 | 0.4 |
| 6854 | *McGee Bros. ⁵⁵ | 7372 | Winamac | found | --- | --- | --- | --- | --- | --- | --- | 4.8 | 5.2 | 0.9 |
| 6854 | | 7372 | Winamac | found | --- | --- | --- | --- | --- | --- | --- | 4.2 | 5.5 | 0.6 |
| 6020 | International Agricultural Corporation, Middle West Division, Lockland, Ohio. | 6020 | Hudson | guaranteed | 0.07 | 0.39 | 0.19 | 0.15 | 0.65 | 0.8 | 3.0 | 8.0 | 1.0 | 1.0 |
| 6020 | *Frank Strook | 6020 | Hudson | found | --- | --- | --- | --- | --- | --- | --- | 8.4 | 1.6 | 1.6 |
| 6023 | Buffalo Dissolved Phosphate | 7893 | French Lick | guaranteed | --- | --- | --- | --- | --- | --- | --- | 14.0 | 1.0 | 1.0 |
| 6023 | W. F. Wright | 7893 | French Lick | found | --- | --- | --- | --- | --- | --- | --- | 17.4 | 0.7 | 0.7 |
| 6024 | I. A. C. 16% Acid Phosphate | 7538 | Princeton | guaranteed | --- | --- | --- | --- | --- | --- | --- | 16.0 | 1.0 | 1.0 |
| 6024 | Lon Turpin | 7538 | Princeton | found | --- | --- | --- | --- | --- | --- | --- | 16.9 | 0.2 | 0.2 |
| 6204 | 18% Acid Phosphate | 6645 | Lebanon | guaranteed | --- | --- | --- | --- | --- | --- | --- | 18.0 | 0.5 | 0.5 |
| 6204 | *Snepp & Kirtley | 6204 | Lebanon | found | --- | --- | --- | --- | --- | --- | --- | 18.4 | 0.2 | 0.2 |
| 6204 | *J. W. Swick | 6204 | Akron | found | --- | --- | --- | --- | --- | --- | --- | 19.6 | 0.1 | 0.1 |
| 6204 | *Jas. F. McFadden | 7406 | Welborn | found | --- | --- | --- | --- | --- | --- | --- | 19.8 | 0.1 | 0.1 |
| 6204 | Frank Archer ⁵² | 7539 | Princeton | found | --- | --- | --- | --- | --- | --- | --- | 18.4 | 0.1 | 0.1 |
| 6244 | Wheat Corn & Oat Special | 7090 | Hazleton | guaranteed | 0.09 | 0.48 | 0.17 | 0.16 | 0.74 | 0.8 | 1.0 | 10.0 | 1.0 | 1.0 |
| 6244 | *E. E. Curtner ⁵³ | 7090 | Hazleton | found | --- | --- | --- | --- | --- | --- | --- | 9.5 | 1.6 | 1.6 |
| 5189 | Jarecki Chemical Company, The, Cincinnati, Ohio | 7241 | New Albany | guaranteed | 0.03 | 0.57 | 0.77 | 0.33 | 1.37 | 1.6 | --- | --- | --- | 27.0 |
| 5189 | *L. Thorne & Sons | 7241 | New Albany | found | --- | --- | --- | --- | --- | --- | --- | --- | --- | 30.3 |
| 5819 | A. Number One Formula | 6900 | Rushville | guaranteed | 0.28 | 0.07 | 0.40 | 0.25 | 0.75 | 0.8 | 1.0 | 9.0 | 1.0 | 1.0 |
| 5819 | *V. W. Norris | 6900 | Rushville | found | 0.15 | 0.25 | 0.22 | 0.38 | 0.62 | 1.0 | 1.0 | 9.6 | 1.3 | 1.3 |
| 5819 | *Wm. Lauphar | 7110 | Washington | found | 0.11 | 0.45 | 0.15 | 0.19 | 0.71 | 0.9 | 0.9 | 9.4 | 1.1 | 1.1 |
| 5819 | J. W. Broadberry | 7446 | W. College Corn'r | found | --- | --- | --- | --- | --- | --- | --- | 9.6 | 2.0 | 2.0 |
| 6145 | An Acid Phosphate | 6145 | Washington | guaranteed | --- | --- | --- | --- | --- | --- | --- | 16.0 | 1.0 | 1.0 |
| 6145 | *G. W. Ferguson | 7113 | Washington | found | --- | --- | --- | --- | --- | --- | --- | 16.6 | 1.1 | 1.1 |
| 6145 | C. M. Gushard ⁵⁴ | 7418 | Laketown | found | --- | --- | --- | --- | --- | --- | --- | 18.0 | 1.2 | 1.2 |
| 6145 | Gilbert Henderson ⁵⁵ | 7468 | Franklin | found | --- | --- | --- | --- | --- | --- | --- | 16.8 | 1.9 | 1.9 |
| 6145 | V. W. Norris | 7514 | Rushville | found | --- | --- | --- | --- | --- | --- | --- | 17.6 | 1.0 | 1.0 |
| 6396 | Jarecki's Cereals | 6396 | Alexandria | guaranteed | 0.32 | 0.91 | 0.24 | 0.23 | 1.47 | 1.6 | 1.0 | 12.0 | 1.0 | 1.0 |
| 6396 | *Geo. K. Shearman | 6724 | Alexandria | found | 0.11 | 0.56 | 0.70 | 0.43 | 1.37 | 1.7 | 1.0 | 12.6 | 1.8 | 1.8 |
| 6396 | *Farmers Supply Co. | 7166 | Spencer | found | 0.49 | 0.89 | 0.21 | 0.21 | 1.59 | 1.8 | 1.0 | 12.1 | 2.4 | 2.4 |
| 6396 | Geo. Powell ⁵⁵ | 7469 | Bargersville | found | --- | --- | --- | --- | --- | --- | --- | 11.6 | 3.4 | 3.4 |

* Sample received in the spring

⁵⁴ Purchased from McConaha Co.

⁵⁵ Purchased from Chas. Brauchia

⁵⁶ Sample to Mfr. (see page 33)

⁵⁷ Purchased from Stephen Kohley.

⁵⁸ Refund (see page 30)

⁵⁹ Sample to Mfr. Refund (see pages 30 and 33)

⁶⁰ Sample to Mfr. Refund (see pages 30 and 33)

⁶¹ Purchased from Cooperative Elevator Co.

⁶² Purchased from Lon Turpin

⁶³ Sample to Mfr. (see page 33)

⁶⁴ Purchased from Farmers Elevator Co.

⁶⁵ Purchased from A. N. Covert, Franklin, Ind.

Refund.

Sample to Mfr.

TABLE VI.—Report of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. BB | Sample taken at | Nitrogen, N | | | | | | Phosphoric acid, P ₂ O ₅ | | | | |
|---|--------------|-------------------|----------------------|--|--|--|---|------------------|---|--|----------------------|------------------|------|--|
| | | | | Water soluble in nitrates and ammonia salts, per cent. | Active water insoluble or- ganic, per cent. | Inactive water insoluble or- ganic, per cent. | Total water soluble and active, per cent. | Total, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted, per cent. | Insoluble, per cent. | Total, per cent. | | |
| | | | | | | | | | | | | | | |
| Jarecki Chemical Company, Cincinnati, Ohio. | | | | | | | | | | | | | | |
| Jarecki's Lake Erie Guano with Phosphate & Potash | 6297 | | guaranteed | 0.14 | 0.28 | 0.33 | 0.55 | 0.75 | 1.2 | 1.0 | 9.0 | 1.0 | | |
| *J. Y. W. McClellan | 6297 | 6687 | Auburn found | 0.28 | 0.29 | 0.33 | 0.41 | 0.89 | 1.3 | 1.0 | 8.4 | 1.9 | | |
| *V. W. Norris | 6297 | 6899 | Rushville found | 0.19 | 0.48 | 0.24 | 0.39 | 0.91 | 1.3 | 1.0 | 9.5 | 1.5 | | |
| Fred Reule | 6297 | 7421 | LaFayette found | 0.16 | 0.51 | 0.22 | 0.41 | 0.89 | 1.3 | 1.1 | 10.1 | 1.9 | | |
| Henry Ehlers | 6297 | 7715 | Osgood found | 0.32 | 0.45 | 0.22 | 0.41 | 0.99 | 1.4 | 1.3 | 9.0 | 2.3 | | |
| T. J. Lindley | 6297 | 7865 | Jeffersonville found | 0.08 | 0.34 | 0.29 | 0.29 | 0.71 | 1.0 | | 11.2 | 4.4 | | |
| Ammoniated Phosphate | 6298 | | guaranteed | 0.07 | 0.01 | 0.16 | 0.23 | 0.24 | 0.5 | 3.1 | 6.2 | 1.3 | | |
| *Ben Bolte & Sons | 6298 | 6914 | Ferdinand found | 0.07 | 0.34 | 0.16 | 0.23 | 0.24 | 0.5 | 3.1 | 6.2 | 1.3 | | |
| Revised Indiana Black Soil Special | 6576 | | guaranteed | 0.07 | 0.34 | 0.16 | 0.23 | 0.24 | 0.5 | 3.1 | 6.2 | 1.3 | | |
| W. A. Thompson | 6576 | 7367 | Star City found | 0.07 | 0.34 | 0.16 | 0.23 | 0.24 | 0.5 | 3.1 | 6.2 | 1.3 | | |
| C-Raw Bone & Phosphate Mixture | 6751 | | guaranteed | 0.07 | 0.34 | 0.16 | 0.23 | 0.24 | 0.5 | 3.1 | 6.2 | 1.3 | | |
| G. M. Johnson & Sons | 6751 | 7877 | Pekin found | 0.07 | 0.34 | 0.16 | 0.23 | 0.24 | 0.5 | 3.1 | 6.2 | 1.3 | | |
| Jarecki's Little Giant | 6759 | | guaranteed | 0.07 | 0.34 | 0.16 | 0.23 | 0.24 | 0.5 | 3.1 | 6.2 | 1.3 | | |
| *G. W. Ferguson | 6759 | 7114 | Washington found | 0.11 | 0.21 | 0.16 | 0.22 | 0.48 | 0.7 | 1.1 | 10.1 | 1.5 | | |
| Jarecki Chemical Company, The, Sandusky, Ohio. | | | | | | | | | | | | | | |
| C. O. D. Phosphate | 2918 | | guaranteed | | | | | | | | 14.0 | 1.0 | | |
| T. J. Lindley | 2918 | 7367 | Jeffersonville found | | | | | | | | 13.8 | 1.8 | | |
| Johnson, Inc., D. D., Chicago, Ill. | | | | | | | | | | | | | | |
| Fertilizer Tankage | 6548 | | guaranteed | 0.09 | 0.40 | 0.75 | 1.33 | 1.24 | 2.0 | 0.8 | | | 1.4 | |
| *John Eitel & Son | 6548 | 6653 | Greencastle found | 0.09 | 0.40 | 0.75 | 1.33 | 1.24 | 2.0 | 0.8 | | | 2.8 | |
| Special Blood and Bone Fertilizer | 6694 | | guaranteed | 0.50 | 0.83 | 3.33 | 1.54 | 4.66 | 6.2 | 1.0 | | | 10.0 | |
| *John Eitel & Son | 6694 | 6647 | Greencastle found | 0.50 | 0.83 | 3.33 | 1.54 | 4.66 | 6.2 | 1.0 | | | 8.5 | |
| Pulverized Sheep Manure | 6695 | | guaranteed | 0.08 | 0.27 | 0.53 | 0.89 | 0.91 | 1.6 | 1.0 | | | 1.5 | |
| *John Eitel & Son | 6695 | 6651 | Greencastle found | 0.08 | 0.27 | 0.53 | 0.89 | 0.91 | 1.6 | 1.0 | | | 2.0 | |
| *John Eitel & Son | 6695 | 6652 | Greencastle found | 0.08 | 0.12 | 0.59 | 0.31 | 0.79 | 1.1 | 0.9 | | | 32.1 | |
| Jones Fertilizer Company, Louisville, Ky. | | | | | | | | | | | | | | |
| Jones Corn & Wheat Grower | 4678 | | guaranteed | 0.25 | 0.06 | 0.15 | 0.24 | 0.46 | 0.8 | 1.0 | 7.0 | 1.0 | | |
| *W. F. Copple | 4678 | 7251 | Nabb found | 0.25 | 0.06 | 0.15 | 0.24 | 0.46 | 0.8 | 1.0 | 7.0 | 1.0 | | |
| Reutepohler Hardware Co. | 4678 | 7689 | Huntingburg found | 0.41 | 0.05 | 0.17 | 0.27 | 0.63 | 0.9 | 1.0 | 7.6 | 0.8 | | |
| Jones One-Eight-Three | 5171 | | guaranteed | 0.21 | 0.07 | 0.17 | 0.25 | 0.46 | 0.7 | 2.0 | 8.0 | 1.0 | | |
| C. G. Hunter | 5171 | 7630 | Columbus found | 0.21 | 0.07 | 0.17 | 0.25 | 0.46 | 0.7 | 2.0 | 8.0 | 1.0 | | |
| Jones Fine Raw Bone Meal | 5315 | | guaranteed | 0.07 | 0.14 | 1.19 | 1.51 | 2.7 | 2.4 | | | | 24.0 | |
| Geo. A. Wilhelm | 5315 | 7675 | Dupont found | 0.07 | 0.14 | 1.19 | 1.51 | 2.7 | 2.4 | | | | 26.2 | |
| Jones Sixteen Percent | 5979 | | guaranteed | | | | | | | | 16.0 | 0.5 | | |
| Geo. A. Wilhelm | 5979 | 7676 | Dupont found | | | | | | | | 17.3 | 1.2 | | |
| Jones Ammoniated Potash Mixture | 5980 | | guaranteed | | | | | | | | 2.0 | 1.0 | | |
| W. A. Allen & Co. ⁶³ | 5980 | 7522 | New Palestine found | 0.14 | 0.04 | 0.09 | 0.13 | 0.27 | 0.4 | 1.6 | 13.5 | 1.2 | | |

[illegible]

* Sample received in the spring
⁶⁸ Withdrawn (see page 31)
⁶⁷ Mutilated tags attached.
⁶⁸ Purchased from W. E. Springer, Elizabethtown, Ind. Not labeled.
 Withdrawn. Labels furnished. Refund (see page 31)
⁶⁹ Purchased from Louisville Fertilizer Co., Louisville, Ky.
⁷⁰ Refund (see page 30)

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. B.B | Sample taken at | Nitrogen, N | | | | | | Potash, K ₂ O, soluble in water, per cent. | Phosphoric acid, P ₂ O ₅ | | |
|--|--------------|--------------------|-----------------|--|----------------------------------|-----------------------------------|-------------------------------------|---|------------------|---|--|----------------------|------------------|
| | | | | Water soluble in nitrates and ammonia salts, per cent. | Water soluble organic, per cent. | Active water insoluble, per cent. | Inactive water insoluble, per cent. | Total water soluble and active, per cent. | Total, per cent. | | Soluble and reverted, per cent. | Insoluble, per cent. | Total, per cent. |
| | | | | | | | | | | | | | |
| Kentucky Fertilizer Company, Branch Federal Chemical Company, Inc., Louisville, Ky. O. K. Mixture Cutsinger & Thompson | 6414 6414 | 7525 | Shelbyville | 0.04 | 0.31 | 0.14 | 0.11 | 0.49 | 0.4 | 12.0 12.3 | 9.7 | | |
| Louisville Fertilizer Company, Louisville, Ky. Eagle Indiana Special Corn Grower | 3124 3124 | 6744 | Lapel | 0.32 | 0.09 | 0.23 | 0.36 | 0.64 | 1.0 | 7.0 | 1.0 | | |
| *Shetlerly Bros. | 3124 | 6744 | Lapel | 0.32 | 0.09 | 0.23 | 0.36 | 0.64 | 1.0 | 7.0 | 1.0 | | |
| *Heintrop & Knels | 4613 | 6862 | Dubois | 0.35 | 0.06 | 0.17 | 0.22 | 0.58 | 0.7 | 7.7 | 0.4 | | |
| Eagle Standard Raw Bone | 4613 | 7634 | Tell City | 0.05 | 0.14 | 2.64 | 1.16 | 2.84 | 3.7 | 22.0 | 23.7 | | |
| Ed. Doogs | 5986 | 7634 | Tell City | 0.05 | 0.14 | 2.64 | 1.16 | 2.84 | 4.0 | 16.0 | 0.5 | | |
| Eagle Sixteen Percent | 5986 | 7634 | Tell City | 0.05 | 0.14 | 2.64 | 1.16 | 2.84 | 4.0 | 16.0 | 0.5 | | |
| *Butcher & Duncan | 5986 | 7634 | Tell City | 0.05 | 0.14 | 2.64 | 1.16 | 2.84 | 4.0 | 16.0 | 0.5 | | |
| Eagle Ammoniated Potash Mixture | 5987 | 7634 | Oakland City | 0.39 | 0.01 | 0.17 | 0.33 | 0.57 | 0.2 | 15.5 | 0.3 | | |
| Henry Arnholt ⁷³ | 5987 | 7634 | Oakland City | 0.39 | 0.01 | 0.17 | 0.33 | 0.57 | 0.2 | 15.5 | 0.3 | | |
| August Arnholt ⁷³ | 5987 | 7634 | Oakland City | 0.39 | 0.01 | 0.17 | 0.33 | 0.57 | 0.2 | 15.5 | 0.3 | | |
| Eagle Bone Phosphate & Potash | 5988 | 7628 | Columbus | 0.21 | 0.34 | 0.04 | 0.11 | 0.59 | 0.7 | 1.9 | 0.8 | | |
| *Heintrop & Knels | 5988 | 7628 | Columbus | 0.21 | 0.34 | 0.04 | 0.11 | 0.59 | 0.7 | 1.9 | 0.8 | | |
| Henry Arnholt ⁷³ | 5988 | 7628 | Columbus | 0.21 | 0.34 | 0.04 | 0.11 | 0.59 | 0.7 | 1.9 | 0.8 | | |
| Wm. Reinking | 5988 | 7628 | Columbus | 0.21 | 0.34 | 0.04 | 0.11 | 0.59 | 0.7 | 1.9 | 0.8 | | |
| Ed. Doogs | 5988 | 7633 | Tell City | 0.14 | 0.03 | 0.20 | 0.20 | 0.40 | 1.0 | 11.6 | 0.8 | | |
| C. Y. Foster & Son | 5988 | 7633 | Tell City | 0.14 | 0.03 | 0.20 | 0.20 | 0.40 | 1.0 | 11.6 | 0.8 | | |
| Grain Formula Special | 6249 | 7627 | Carmel | 0.06 | 0.04 | 0.14 | 0.26 | 0.24 | 0.5 | 1.0 | 1.0 | | |
| Geo. Schultz ⁷⁴ | 6249 | 7627 | Carmel | 0.06 | 0.04 | 0.14 | 0.26 | 0.24 | 0.5 | 1.0 | 1.0 | | |
| Special Grain Grower Formula | 6250 | 7627 | Elizabethtown | 0.16 | 0.04 | 0.13 | 0.27 | 0.33 | 0.6 | 11.3 | 0.7 | | |
| D. H. Yundt | 6250 | 7627 | Elizabethtown | 0.16 | 0.04 | 0.13 | 0.27 | 0.33 | 0.6 | 11.3 | 0.7 | | |
| James R. Brown ⁷⁵ | 6250 | 7627 | Elizabethtown | 0.16 | 0.04 | 0.13 | 0.27 | 0.33 | 0.6 | 11.3 | 0.7 | | |
| Eagle Ammoniated Phosphate | 6403 | 7623 | Mulberry | 0.23 | 0.03 | 0.11 | 0.23 | 0.32 | 0.6 | 8.6 | 0.3 | | |
| *Whitsitt & Sarver | 6403 | 7623 | Frankfort | 0.07 | 0.16 | 0.37 | 0.21 | 0.61 | 1.7 | 10.0 | 0.5 | | |
| Fred Schultz ⁷⁶ | 6403 | 7623 | Frankfort | 0.07 | 0.16 | 0.37 | 0.21 | 0.61 | 1.7 | 10.0 | 0.5 | | |
| Eagle Grain Grower Special | 6405 | 7635 | Scottsburg | 0.28 | 0.42 | 0.46 | 0.54 | 1.16 | 1.6 | 9.2 | 1.4 | | |
| *Foster & Grannon | 6405 | 7635 | Columbus | 0.47 | 0.04 | 0.35 | 0.44 | 0.86 | 1.3 | 11.2 | 0.8 | | |
| Hardin & Wade | 6405 | 7635 | Columbus | 0.47 | 0.04 | 0.35 | 0.44 | 0.86 | 1.3 | 11.2 | 0.8 | | |
| Eagle One Eight Three | 6730 | 7631 | Carmel | 0.15 | 0.02 | 0.11 | 0.22 | 0.28 | 0.4 | 8.0 | 0.5 | | |
| Henry Arnholt ⁷⁷ | 6730 | 7631 | Carmel | 0.15 | 0.02 | 0.11 | 0.22 | 0.28 | 0.4 | 8.0 | 0.5 | | |
| Eagle One-Twelve-One Fertilizer | 6858 | 7624 | Tell City | 0.21 | 0.03 | 0.05 | 0.30 | 0.30 | 0.6 | 9.9 | 0.8 | | |
| Henry Arnholt ⁷⁸ | 6858 | 7624 | Campbellsburg | 0.10 | 0.01 | 0.08 | 0.21 | 0.19 | 0.4 | 1.0 | 0.8 | | |
| A. M. Bohmert | 6858 | 7624 | Campbellsburg | 0.10 | 0.01 | 0.08 | 0.21 | 0.19 | 0.4 | 1.0 | 0.8 | | |
| Jones Special Grain Grower | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 3.0 | 0.5 | | |
| Flord Cronse ⁷⁹ | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 6.7 | 1.0 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631 | Columbus | 0.28 | 0.03 | 0.17 | 0.32 | 0.48 | 0.8 | 12.0 | 0.5 | | |
| | 6880 | 7631</ | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|------|-------------|------------|------|------|------|------|------|-----|-----|------|
| Jones Green Grower Special | 6881 | Shelbyville | guaranteed | 0.01 | 0.10 | 0.09 | 0.20 | 0.4 | 1.0 | 8.0 | 0.3 |
| O. L. Means | 6881 | Shelbyville | found | 0.01 | 0.10 | 0.09 | 0.20 | 0.4 | 1.0 | 8.0 | 0.3 |
| The Schuler Implement Co. | 6881 | Evansville | found | 0.07 | 0.01 | 0.13 | 0.29 | 0.21 | 0.5 | 0.8 | 1.6 |
| J. A. Glendon | 6881 | Frankfort | found | 0.07 | 0.07 | 0.13 | 0.30 | 0.20 | 0.5 | 1.1 | 0.4 |
| Jones Twelve One Fertilizer | 6884 | Evansville | guaranteed | --- | --- | --- | --- | --- | --- | 1.0 | 12.0 |
| The Schuler Implement Co. | 6884 | Evansville | found | --- | --- | --- | --- | --- | --- | 0.9 | 11.6 |
| Major Bros. Packing Company, The, Mishawaka, Ind. | | | | | | | | | | | |
| Major's Fertilizer | 4217 | Brook | guaranteed | 0.38 | 0.79 | 2.75 | 0.88 | 3.92 | 3.5 | --- | 16.0 |
| *Brook Flour & Feed Mill | 4217 | Mishawaka | found | 0.07 | 1.23 | 2.40 | 0.80 | 3.70 | 4.5 | --- | 20.8 |
| *Major Bros. Packing Co. | 4217 | Mishawaka | found | 0.42 | 0.12 | 2.09 | 1.37 | 2.63 | 4.0 | --- | 21.6 |
| Major Bros. Packing Co. | 4217 | Mishawaka | found | --- | --- | --- | --- | --- | --- | --- | --- |
| Morris & Company, Chicago, Ill. | | | | | | | | | | | |
| Big One—Pure Ground Raw Bone | 4091 | Ferdinand | guaranteed | 0.07 | 0.04 | 2.31 | 0.78 | 2.42 | 3.0 | --- | 24.0 |
| John Hoffman | 4091 | Ferdinand | found | --- | --- | --- | --- | --- | 3.2 | --- | 27.0 |
| Big Two—Pure Bone Meal | 4092 | Huntingburg | guaranteed | 0.25 | 0.01 | 1.14 | 0.50 | 1.40 | 2.0 | --- | 38.0 |
| *H. Dufendach | 4092 | Dupont | found | 0.07 | 0.30 | 1.56 | 0.77 | 1.53 | 1.9 | --- | 30.0 |
| *G. B. Lewis & Sons | 4092 | Westport | found | 0.04 | 0.19 | 1.42 | 0.75 | 1.65 | 2.4 | --- | 28.9 |
| Westport Hardware Co. | 4092 | Ferdinand | found | 0.02 | 0.15 | 1.10 | 0.63 | 1.27 | 1.9 | --- | 28.7 |
| John Hoffman | 4092 | Ferdinand | guaranteed | --- | --- | --- | --- | --- | --- | 1.0 | 7.0 |
| Big Eight—Ammoniated Acid Phosphate & Potash | 4098 | Summan | found | 0.06 | 0.11 | 0.24 | 0.39 | 0.51 | 0.8 | --- | 1.0 |
| John Nedderman | 4098 | Summan | found | --- | --- | --- | --- | --- | 1.3 | --- | 8.5 |
| Big Five | 4352 | Mitchell | guaranteed | 0.08 | 0.53 | 0.79 | 0.93 | 1.37 | 2.5 | --- | 1.0 |
| *H. H. Crawford | 4352 | Covington | found | 0.14 | 0.92 | 0.95 | 0.69 | 2.01 | 2.7 | --- | 6.0 |
| T. H. McGee Jr. Co. | 6530 | Covington | found | --- | --- | --- | --- | --- | 1.2 | --- | 10.0 |
| Special Big Six | 6530 | Covington | found | --- | --- | --- | --- | --- | 1.5 | --- | 8.5 |
| *H. A. Brooks | 6530 | Boonville | guaranteed | 0.10 | 0.25 | 0.22 | 0.13 | 0.57 | 0.4 | --- | 1.0 |
| Thornburg Bros. | 6530 | Boonville | found | 0.16 | 0.40 | 0.24 | 0.56 | 0.8 | 1.0 | --- | 16.9 |
| Westport Hardware Co. | 6530 | Westport | found | 0.13 | 0.01 | 0.24 | 0.22 | 0.38 | 0.6 | --- | 16.2 |
| Special Big Seven | 6531 | Westport | guaranteed | --- | --- | --- | --- | --- | 0.9 | --- | 22.0 |
| Arthur Woods | 6531 | Princeton | found | 0.04 | 0.14 | 0.36 | 0.26 | 0.54 | 0.8 | --- | 24.4 |
| G. B. Lewis & Sons | 6531 | Dupont | found | 0.04 | 0.04 | 0.78 | 0.38 | 0.82 | 1.2 | --- | 23.2 |
| *H. H. Crawford | 6532 | Dupont | guaranteed | --- | --- | --- | --- | --- | 0.4 | --- | 1.0 |
| Special Big Nine | 6532 | Dupont | found | --- | --- | --- | --- | --- | 1.6 | --- | 10.0 |
| *H. H. Crawford | 6532 | Mitchell | found | --- | --- | --- | --- | --- | 1.6 | --- | 10.0 |
| Special Big Ten | 6533 | Mitchell | guaranteed | --- | --- | --- | --- | --- | 2.3 | --- | 10.0 |
| *J. B. Swain | 6533 | Edinburg | found | 0.19 | 0.21 | 0.56 | 0.64 | 0.96 | 0.8 | --- | 1.0 |
| Special Big Eleven | 6534 | Edinburg | guaranteed | --- | --- | --- | --- | --- | 1.6 | --- | 1.0 |
| *H. A. Brooks | 6534 | Orleans | found | 0.07 | 0.29 | 0.29 | 0.35 | 0.65 | 1.0 | --- | 0.4 |
| *J. B. Swain | 6534 | Edinburg | found | 0.07 | 0.31 | 0.32 | 0.40 | 0.70 | 1.1 | --- | 0.3 |
| Thornburg Bros. | 6534 | Edinburg | found | 0.06 | 0.15 | 0.35 | 0.54 | 0.70 | 1.1 | --- | 0.7 |
| J. C. Nedderman | 6534 | Boonville | found | 0.04 | 0.21 | 0.30 | 0.45 | 0.53 | 1.1 | --- | 1.1 |
| Special Big Twelve | 6535 | Summan | guaranteed | --- | --- | --- | --- | --- | 1.6 | --- | 2.0 |
| *Kattman & Tilley | 6535 | Brazil | found | 0.09 | 0.55 | 0.56 | 0.60 | 1.20 | 1.8 | --- | 0.6 |
| *H. A. Brooks | 6535 | Orleans | found | 0.08 | 0.63 | 0.50 | 0.59 | 1.21 | 1.8 | --- | 0.8 |
| *Union Hardware Co. | 6535 | Seymour | found | 0.10 | 0.53 | 0.41 | 0.56 | 1.04 | 1.6 | --- | 0.8 |
| Special Big Three | 6721 | Seymour | guaranteed | --- | --- | --- | --- | --- | 0.4 | --- | 2.0 |
| *Reynolds-Brooks Hardware Co. | 6721 | Loogootee | found | 0.12 | 0.09 | 0.13 | 0.26 | 0.34 | 0.6 | --- | 13.0 |

* Sample received in the spring
 71 Purchased from W. E. Springer, Elizabethtown, Ind. Improperly labeled. Relabeled
 72 Purchased from W. E. Springer, Elizabethtown, Ind. Not labeled.
 73 Purchased from W. E. Springer, Elizabethtown, Ind. Relabeled
 74 Purchased from W. E. Springer, Elizabethtown, Ind. Refund
 75 Purchased from D. H. Yundt, Mulberry, Ind.
 76 Purchased from W. E. Springer, Elizabethtown, Ind. Refund
 77 Purchased from W. E. Springer, Elizabethtown, Ind. Relabeled
 78 Purchased from W. E. Springer, Elizabethtown, Ind.
 79 Purchased from D. H. Yundt, Mulberry, Ind.

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. B.B | Sample taken at | | Nitrogen, N | | | | | Potash, K ₂ O, soluble in water, per cent. | Phosphoric acid, P ₂ O ₅ | | | | |
|---|--------------|--------------------|-----------------|------------|--|----------------------------------|--|---|---|---|--|---------------------------------|----------------------|------------------|------|
| | | | | | Water soluble in nitrates and ammonia salts, per cent. | Water soluble organic, per cent. | Active water insoluble or inactivable, per cent. | Inactivable water insoluble or organic, per cent. | Total water soluble and active, per cent. | | Total, per cent. | Soluble and reverted, per cent. | Insoluble, per cent. | Total, per cent. | |
| | | | | | | | | | | | | | | | |
| Mt. Pleasant Fertilizer Company, Inc., Mt. Pleasant, Tenn. | 4198 | 6642 | Mt. Vernon | guaranteed | | | | | | | | | | | 28.0 |
| Mt. Pleasant Untreated Phosphate | 4198 | 6642 | Mt. Vernon | found | | | | | | | | | | | 31.9 |
| *J. D. Webborn | 4198 | 6670 | Brook | | | | | | | | | | | | 32.7 |
| *W. T. McCray | | | | | | | | | | | | | | | |
| Niederhaus, Fred, Staser, Ind. Indiana Special | 6232 | | | | | | | | | | | | | | |
| Evansville Packing Co. | 6232 | 7580 | Evansville | guaranteed | 0.21 | 0.04 | 0.31 | 0.44 | 0.56 | 1.0 | 1.0 | 12.0 | | 2.0 | |
| | | | | found | | | | | | 1.0 | 1.4 | 12.2 | | 3.0 | |
| Nitrate Agencies Company, Western Branch, Columbus, Ohio. | 5576 | | | | | | | | | | | | | | |
| Acid Phosphate 16% | 5576 | | | guaranteed | | | | | | | | 16.0 | | 1.0 | |
| *Jacob Walters | 5576 | 7074 | Nappanee | found | | | | | | | | 16.0 | | 3.9 | |
| Packer Fertilizer Company, The, Indianapolis, Ind. | | | | | | | | | | | | | | | |
| Our Wheat Grower | 3558 | | | guaranteed | | | | | | | | | | | |
| G. D. Henderson | 3558 | 7721 | Holton | found | 0.04 | | 0.28 | 0.58 | 0.32 | 0.8 | 1.0 | 7.0 | | 1.0 | |
| Corn & Wheat Special | 3559 | | | guaranteed | | | | | | | | 7.6 | | 0.8 | |
| *C. M. Harvey | 3559 | 6684 | Hartford City | found | 0.07 | 0.04 | 0.41 | 0.48 | 0.52 | 1.0 | 2.1 | 8.0 | | 1.0 | |
| Half & Half | 4797 | | | guaranteed | | | | | | | | 8.7 | | 0.6 | |
| G. D. Henderson | 4797 | | Holton | found | 0.11 | 0.30 | 0.54 | 0.45 | 0.95 | 1.4 | | 8.0 | | 11.0 | |
| 16% Acid Phosphate | 6187 | 7720 | | guaranteed | | | | | | | | 8.6 | | 11.5 | |
| *Miles Standish | 6187 | | Bedford | found | | | | | | | | 16.0 | | | |
| Pearl Underwood | 6187 | 7467 | Bargersville | found | | | | | | | | 16.0 | | 0.5 | |
| Superphosphated Manure | 6239 | | | guaranteed | | | | | | | | 17.0 | | 1.5 | |
| *C. M. Harvey | 6239 | 6855 | Hartford City | found | 0.04 | 0.10 | 0.47 | 0.49 | 0.61 | 1.1 | | 10.0 | | 1.0 | |
| Linn Wilson & Co. | 6239 | 7885 | Farmount | found | 0.03 | 0.43 | 0.25 | 0.46 | 0.74 | 1.2 | | 10.4 | | 0.4 | |
| Black Soil Formula | 6282 | | | guaranteed | | | | | | | | 10.0 | | 1.0 | |
| *Jordan & Baird | 6282 | 7128 | Kewanna | found | 0.10 | 0.02 | 0.24 | 0.44 | 0.36 | 0.8 | 3.9 | 7.1 | | 0.7 | |
| *W. T. McCray | 6282 | 7345 | Kentland | found | 0.06 | 0.01 | 0.28 | 0.45 | 0.35 | 0.8 | 4.4 | 5.9 | | 1.1 | |
| Plant Food | 6283 | | | guaranteed | | | | | | | | 12.0 | | | |
| *Jordan & Baird | 6283 | 7127 | Kewanna | found | 0.28 | 0.29 | 0.21 | 0.32 | 0.78 | 1.1 | 1.1 | 13.0 | | 0.5 | |
| Soil Food | 6284 | | | guaranteed | | | | | | | | 8.0 | | | |
| *C. M. Harvey | 6284 | 6686 | Hartford City | found | 0.39 | 0.01 | 0.29 | 0.41 | 0.69 | 1.1 | 0.6 | 8.4 | | 0.4 | |
| Tankage & Bone Phosphate | 6285 | | | guaranteed | | | | | | | | 8.0 | | | |
| *Miles Standish | 6285 | 6796 | Bedford | found | 0.33 | 0.82 | 0.42 | 0.40 | 1.60 | 2.0 | | 8.5 | | 0.5 | |
| Corn & Wheat Special Without Potash | 6286 | | | guaranteed | | | | | | | | 8.0 | | | |
| Conrad Bates | 6286 | 7696 | Jasper | found | 0.05 | 0.20 | 0.25 | 0.40 | 0.50 | 0.8 | | 8.5 | | 0.8 | |

| | | | | | | | | | | | |
|------|--|-------------|------------------|------|------|------|------|------|-----|------|------|
| 6304 | Morris & De Prez Drug Co. | Shelbyville | guaranteed found | 0.22 | 1.04 | 0.10 | 0.24 | 1.36 | 1.6 | 12.0 | 1.0 |
| 6304 | Packer's Sweepstakes | Paoli | guaranteed found | 0.15 | 0.48 | 0.33 | 0.34 | 0.96 | 1.2 | 12.5 | 2.5 |
| 6306 | *J. P. Wilson | Kentland | guaranteed found | 0.13 | 0.05 | 0.21 | 0.31 | 0.39 | 0.7 | 1.0 | 1.0 |
| 6306 | Revised Indiana Black Soil Special | Brazil | guaranteed found | 0.08 | 0.48 | 0.17 | 0.27 | 0.73 | 1.0 | 10.8 | 2.1 |
| 6378 | *Pearson Pendergrass s ¹ | Rushville | found | 0.07 | 0.96 | 0.17 | 0.20 | 0.90 | 1.1 | 11.0 | 1.5 |
| 6578 | Favorite Grain Grower | Charlestown | found | 0.05 | 0.16 | 0.24 | 0.35 | 0.45 | 0.8 | 10.1 | 2.6 |
| 6621 | *W. C. Hall Milling Co. | Orleans | guaranteed found | 0.95 | 0.21 | 0.42 | 0.12 | 1.58 | 1.7 | 16.0 | 1.0 |
| 6621 | V. W. Norris | Shelbyville | guaranteed found | 0.09 | 0.09 | 0.17 | 0.25 | 0.35 | 0.6 | 8.0 | 8.6 |
| 6621 | J. Raymond Strutt | Brazil | guaranteed found | 0.07 | 6.13 | 0.15 | 0.25 | 0.35 | 0.6 | 1.0 | 1.0 |
| 6708 | Acid Phosphate 16% | Troy | found | 0.06 | 0.19 | 0.09 | 0.16 | 0.34 | 0.5 | 1.0 | 1.0 |
| 6753 | Harry Brooks | Cedar Grove | found | 0.06 | 0.13 | 0.09 | 0.22 | 0.28 | 0.5 | 1.1 | 11.3 |
| 6753 | Pure Bone with Phosphate | Paoli | found | 0.06 | 0.13 | 0.09 | 0.22 | 0.28 | 0.5 | 1.1 | 11.3 |
| 6753 | Morris & De Prez Drug Co. | Shelbyville | guaranteed found | 0.03 | 0.01 | 0.18 | 0.25 | 0.25 | 0.4 | 12.0 | 1.0 |
| 6761 | Packer's O. K. Fertilizer | Winamac | found | 0.03 | 0.28 | 0.06 | 0.16 | 0.34 | 0.5 | 13.3 | 0.9 |
| 6761 | *W. C. Hall Milling Co. | Charlestown | found | 0.03 | 0.28 | 0.06 | 0.16 | 0.34 | 0.5 | 12.8 | 1.7 |
| 6761 | *Joseph Holtzmann | | | | | | | | | | |
| 6761 | J. Dorflein & Son | | | | | | | | | | |
| 6761 | James Wilson | | | | | | | | | | |
| 3902 | Packers Fertilizer Company, The, St. Bernard, Ohio. | | | | | | | | | | |
| 3902 | Humus Phosphate | | | | | | | | | | |
| 3902 | *J. R. Starr | | | | | | | | | | |
| 3902 | J. Raymond Strutt | | | | | | | | | | |
| 3923 | Pero & Stoecker, Louisville, Ky. | | | | | | | | | | |
| 3923 | Pure Animal Matter Corn and Wheat Grower | | | | | | | | | | |
| 3923 | *John Goepfrich | | | | | | | | | | |
| 4909 | "A" Pure Bone Meal | | | | | | | | | | |
| 4909 | John Goepfrich | | | | | | | | | | |
| 4656 | Pulverized Manure Company, The, Chicago, Ill. | | | | | | | | | | |
| 4656 | Wizard Brand Pure Manure | | | | | | | | | | |
| 4656 | Fred Reule | | | | | | | | | | |
| 6220 | Rasin Monumental Company, Cincinnati Sales Office, Cincinnati, Ohio. | | | | | | | | | | |
| 6220 | *King Grain Co. ^{s2} | | | | | | | | | | |
| 6220 | Rasins Royal Grain Grower | | | | | | | | | | |
| 6316 | Rasin's Farmer's Success | | | | | | | | | | |
| 6316 | *Abe Bossert | | | | | | | | | | |
| 6317 | Rasin's Western Guano | | | | | | | | | | |
| 6317 | Jas. W. Eades | | | | | | | | | | |
| 6319 | Rasin's Special Plant Food | | | | | | | | | | |
| 6319 | *Harry E. Pavey | | | | | | | | | | |
| 6720 | Rasin Monumental Company, Subsidiary of the Virginia-Carolina Chemical Company, Cincinnati Division, Cincinnati, Ohio. | | | | | | | | | | |
| 6720 | *H. O. Craig | | | | | | | | | | |
| 6720 | Rasin's Fenhumus Fertilizer | | | | | | | | | | |
| 6720 | John Grum | | | | | | | | | | |
| 6836 | Rasin's 20% Acid Phosphate | | | | | | | | | | |
| 6836 | *Harry B. Pavey | | | | | | | | | | |

* Sample received in the spring
s¹ Purchased from Samuel Leer

s¹ Purchased from W. T. McCray
s² Returned to Mfr. Refund. Sample to Mfr. (see page 30)

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. B.B. | Sample taken at | Nitrogen, N | | | | | Potash, K ₂ O, soluble in water, per cent. | Phosphoric acid, P ₂ O ₅ | | |
|--|--------------|---------------------|-----------------|--|--|--|---|------------------|---|--|----------------------|------------------|
| | | | | Water soluble in nitrates and ammonia salts, per cent. | Active water insoluble or organic, per cent. | Inactive water insoluble or organic, per cent. | Total water soluble and active, per cent. | Total, per cent. | | Soluble and reverted, per cent. | Insoluble, per cent. | Total, per cent. |
| Rasin-Monumental Company, Subsidiary of the Virginia-Carolina Chemical Company, Cincinnati Division, Cincinnati, Ohio. | | | | | | | | | | | | |
| Rasin's Royal Grain Grower | 6837 | 7393 | Brookville | guaranteed found | --- | --- | --- | --- | --- | 2.0 | 12.0 | 1.5 |
| *Abe Bossert | 6837 | --- | Brookville | guaranteed found | --- | --- | --- | --- | --- | 2.1 | 13.5 | 1.7 |
| Rasin's Grain Fertilizer | 6838 | 6783 | Greensburg | found | 0.50 | 0.39 | 0.31 | 0.89 | 0.8 | --- | 13.0 | 1.5 |
| *H. O. Craig ⁸³ | 6838 | 7556 | Greensburg | found | 0.56 | 0.22 | 0.20 | 1.00 | 1.2 | --- | 14.3 | 1.2 |
| H. O. Craig | 6838 | 7802 | Bargersville | found | 0.64 | 0.02 | 0.19 | 0.06 | 0.85 | --- | 15.2 | 4.5 |
| Jas. W. Eades | 6838 | --- | Bargersville | guaranteed found | --- | --- | --- | --- | --- | 1.6 | 11.0 | 1.5 |
| Rasin's Special Plant Food | 6839 | 7803 | Bargersville | found | 1.19 | 0.22 | 0.18 | 0.11 | 1.59 | --- | 18.5 | 6.0 |
| Jas. W. Eades | 6842 | --- | Bargersville | guaranteed found | --- | --- | --- | --- | --- | 2.0 | 8.0 | 1.5 |
| Rasin's Reliable Wheat and Corn Fertilizer | 6842 | --- | Brookville | found | 0.57 | 0.27 | 0.21 | 0.25 | 1.05 | 1.3 | 12.0 | 0.9 |
| *Abe Bossert | 6843 | 7392 | Brookville | guaranteed found | --- | --- | --- | --- | --- | 3.0 | 8.0 | 1.5 |
| Rasin's Big Giant Phosphate | 6843 | 6984 | Wabash | found | 0.70 | 0.11 | 0.19 | 0.10 | 1.00 | 1.1 | 9.1 | 1.7 |
| *King Grain Co. | 6844 | --- | Wabash | guaranteed found | --- | --- | --- | --- | --- | 0.8 | 10.0 | 12.0 |
| Rasin's Phosphate and Bone Meal | 6844 | 6983 | Wabash | guaranteed found | --- | 0.36 | 0.37 | 0.07 | 0.73 | 0.8 | 11.5 | 12.6 |
| *King Grain Co. | | | | | | | | | | | | |
| Rauh & Sons Fertilizer Company, E., Indianapolis, Ind. | | | | | | | | | | | | |
| Rauh's Half Pure Raw Bone & Half Pure Bone Phosphate | 3193 | --- | Milan | guaranteed found | 0.08 | 0.34 | 0.57 | 0.41 | 0.99 | 1.2 | 8.5 | 11.0 |
| *Milan Mill & Elevator | 3193 | 7298 | Brookville | found | 0.08 | 0.45 | 0.34 | 0.43 | 0.87 | 1.3 | 9.9 | 11.2 |
| A. C. Ludwig | 3193 | 7498 | Evansville | found | 0.07 | 0.10 | 0.66 | 0.37 | 0.83 | 1.4 | 8.0 | 14.1 |
| Schenk Bros. & Korresel | 3553 | 7592 | Evansville | guaranteed found | --- | --- | --- | --- | --- | --- | 8.7 | 11.8 |
| Corn & Wheat Grower | 3553 | 6722 | Brook | found | 0.14 | 0.11 | 0.33 | 0.52 | 0.58 | 2.0 | 8.0 | 1.0 |
| *Harvey Hinton ⁸⁴ | 3553 | 6850 | Paoli | found | 0.09 | 0.09 | 0.33 | 0.47 | 0.53 | 1.1 | 1.9 | 8.9 |
| *M. L. Farlow | 4796 | --- | Richmond | guaranteed found | 1.16 | 0.03 | 0.28 | 0.33 | 1.47 | 1.6 | 2.1 | 9.4 |
| Rauh's Choice | 4796 | 6950 | Richmond | found | --- | --- | --- | --- | --- | 1.8 | 8.0 | 0.1 |
| *T. S. Martin | 5801 | --- | Bloomington | guaranteed found | 0.08 | 0.14 | 0.33 | 0.45 | 0.55 | 1.0 | 7.0 | 1.2 |
| Soluble Fertilizer | 5801 | 7401 | Bloomington | found | --- | --- | --- | --- | --- | 1.0 | 1.1 | 7.9 |
| *W. J. Eller | 5802 | --- | Summan | guaranteed found | 0.08 | 0.01 | 0.31 | 0.60 | 0.40 | 0.8 | 1.0 | 9.0 |
| Cereal Manure | 5802 | 7773 | Summan | found | --- | --- | --- | --- | --- | 2.0 | 9.1 | 1.0 |
| Lewis Sieg | 5854 | --- | Morris | guaranteed found | 0.20 | 0.05 | 0.90 | 1.05 | 1.15 | 2.2 | 1.6 | --- |
| Rauhumus Manure | 5854 | 7354 | Morris | found | --- | --- | --- | --- | --- | --- | --- | --- |
| *Maurice Volz | 6185 | --- | Warren | guaranteed found | --- | --- | --- | --- | --- | --- | 16.0 | 0.3 |
| 16% Acid Phosphate | 6185 | 6747 | Warren | found | --- | --- | --- | --- | --- | --- | 16.4 | 0.4 |
| *W. L. Brachle | 6185 | 7360 | Covington | found | --- | --- | --- | --- | --- | --- | 16.9 | 0.5 |

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. HB | Sample taken at | Nitrogen, N | | | | | | Phosphoric acid, P ₂ O ₅ | | |
|---|--------------|-------------------|-----------------|--|--|--|---|------------------|---|--|----------------------|------------------|
| | | | | Water soluble in nitrates and ammonia salts, per cent. | Active water insoluble or ganic, per cent. | Inactive water insoluble or ganic, per cent. | Total water soluble and active, per cent. | Total, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted, per cent. | Insoluble, per cent. | Total, per cent. |
| Read Phosphate Company, New Albany Sales Department, New Albany, Ind. | | | | | | | | | | | | |
| Tankage & Phosphate Special | 6314 | 6866 | Huntingburg | 0.08 | 0.13 | 0.24 | 0.45 | 0.45 | --- | 12.0 | 1.0 | --- |
| *Herman Stenkamp | 6314 | 6866 | Kewanna | 0.08 | 0.13 | 0.24 | 0.45 | 0.45 | --- | 11.3 | 2.4 | --- |
| *C. S. Callahan | 6314 | 7104 | Rushville | 0.07 | 0.04 | 0.30 | 0.48 | 0.52 | --- | 11.7 | 2.1 | --- |
| F. J. Ewbank & Son | 6314 | 7516 | Martinsville | 0.07 | 0.04 | 0.32 | 0.67 | 0.43 | --- | 11.6 | 0.8 | --- |
| Denning Lumber Co. | 6314 | 7745 | Worthington | 0.08 | 0.23 | 0.21 | 0.38 | 0.52 | --- | 12.5 | 0.5 | --- |
| Frank D. Fulk | 6315 | 8012 | Worthington | 0.08 | 0.23 | 0.21 | 0.38 | 0.52 | --- | 12.9 | 0.6 | --- |
| Ammoniated Potash & Phosphate No. 1. | 6315 | 7858 | Charlestown | 0.31 | 0.01 | 0.22 | 0.36 | 0.54 | --- | 1.0 | 10.0 | 1.0 |
| Spiestriebach Bros. | 6315 | 7858 | Charlestown | 0.31 | 0.01 | 0.22 | 0.36 | 0.54 | --- | 1.0 | 10.7 | 1.3 |
| Complete No. 2 | 6316 | 6736 | Etna Green | 0.13 | 0.33 | 0.21 | 0.23 | 0.67 | --- | 1.0 | 9.0 | 1.0 |
| *Peter Messner | 6316 | 6736 | Etna Green | 0.13 | 0.33 | 0.21 | 0.23 | 0.67 | --- | 1.0 | 7.6 | 3.1 |
| Favorite | 6317 | 6317 | Goshen | 0.36 | 0.50 | 0.48 | 0.36 | 1.34 | --- | 12.0 | 1.0 | --- |
| *Wm. F. Neff | 6317 | 7254 | Goshen | 0.28 | 0.25 | 0.82 | 0.35 | 1.35 | --- | 13.2 | 1.6 | --- |
| *Goshen-College Farm ⁹³ | 6317 | 7256 | Rushville | 0.170 | 0.68 | 0.17 | 0.35 | 1.55 | --- | 12.1 | 2.9 | --- |
| F. J. Ewbank & Son | 6317 | 7517 | Fairmount | 1.14 | 0.80 | 0.47 | 0.29 | 1.91 | --- | 12.7 | 0.4 | --- |
| Linn Wilson | 6317 | 7886 | Fairmount | 1.14 | 0.80 | 0.47 | 0.29 | 1.91 | --- | 12.3 | 1.1 | --- |
| Half-Seven-Three | 6606 | 6606 | Winamac | 0.14 | 0.10 | 0.11 | 0.15 | 0.35 | --- | 3.0 | 7.0 | 1.0 |
| *J. R. Starr | 6606 | 7376 | Winamac | 0.14 | 0.10 | 0.11 | 0.15 | 0.35 | --- | 3.6 | 7.4 | 1.7 |
| Read's Five-Five | 6866 | 6712 | Fremont | --- | --- | --- | --- | --- | --- | 5.0 | 5.0 | 1.0 |
| *E. C. Shupp | 6866 | 6712 | Brookston | --- | --- | --- | --- | --- | --- | 4.7 | 5.5 | 1.1 |
| *Wm. Woods ⁹⁴ | 6866 | 7063 | Brookston | --- | --- | --- | --- | --- | --- | 5.0 | 5.9 | 4.7 |
| *Geo. E. Stauffer | 6866 | 7099 | South Bend | --- | --- | --- | --- | --- | --- | 5.2 | 5.1 | 2.0 |
| *Chas. S. Callahan | 6866 | 7103 | Kewanna | --- | --- | --- | --- | --- | --- | 6.0 | 7.5 | 2.3 |
| Royster Guano Company, F. S., Northern Division, Baltimore, Md. | | | | | | | | | | | | |
| Royster's H. G. 16% Acid Phosphate | 6783 | 7050 | No. Manchester | --- | --- | --- | --- | --- | --- | 16.0 | 0.5 | --- |
| *G. Blickenstaff ⁹⁵ | 6783 | 7050 | No. Manchester | --- | --- | --- | --- | --- | --- | 17.3 | 0.1 | --- |
| *O. G. Fifield | 6783 | 7324 | Hebron | --- | --- | --- | --- | --- | --- | 16.8 | 0.8 | --- |
| Royster's Special Wheat Grower | 6785 | 7252 | Deputy | 0.53 | 0.14 | 0.29 | 0.14 | 0.96 | --- | 12.0 | 0.5 | --- |
| *J. E. Sullivan | 6785 | 7438 | Liberty | 0.28 | 0.12 | 0.22 | 0.28 | 0.62 | --- | 12.4 | 0.6 | --- |
| J. A. Bertsch & Son | 6786 | 7258 | Deputy | 1.00 | 0.17 | 0.38 | 0.25 | 1.55 | --- | 12.0 | 1.0 | --- |
| Royster's Penguin Ammoniated Superphosphate. | 6786 | 7258 | Deputy | 1.00 | 0.17 | 0.38 | 0.25 | 1.55 | --- | 10.0 | 0.5 | --- |
| *J. E. Sullivan | 6794 | 7377 | Deputy | 0.13 | 0.24 | 0.43 | 0.33 | 0.80 | --- | 9.8 | 1.7 | --- |
| Ground Bone Meal | 6794 | 7377 | South Bend | 0.13 | 0.24 | 0.43 | 0.33 | 0.80 | --- | --- | --- | 29.0 |
| *Alex Rudel ⁹⁶ | 6830 | 7051 | No. Manchester | 1.26 | 0.14 | 0.23 | 0.37 | 1.63 | --- | --- | --- | 23.0 |
| Royster's Flamingo Ammoniated Superphosphate. | 6830 | 7051 | No. Manchester | 1.26 | 0.14 | 0.23 | 0.37 | 1.63 | --- | --- | --- | 23.0 |
| *A. L. Niccum | 6904 | 7253 | Deputy | 0.21 | 0.01 | 0.20 | 0.18 | 0.42 | --- | 0.5 | 13.0 | 0.5 |
| Royster's Dependo Grain Grower | 6904 | 7253 | Deputy | 0.21 | 0.01 | 0.20 | 0.18 | 0.42 | --- | 0.7 | 12.9 | 0.7 |
| *J. E. Sullivan | 6904 | 7448 | Helmsburg | 0.10 | 0.02 | 0.12 | 0.26 | 0.24 | --- | 0.6 | 13.2 | 0.6 |
| Charles Rogers | 6904 | 7448 | Helmsburg | 0.10 | 0.02 | 0.12 | 0.26 | 0.24 | --- | --- | --- | --- |

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. BB | Sample taken at | Nitrogen, N | | | | | | Potash, K ₂ O, soluble in water, per cent. | Phosphoric acid, P ₂ O ₅ | | |
|---|--------------|-------------------|-----------------|--|----------------------------------|--------------------------------|---------------------------|---------------------------------|--------------------------------|---|--|----------------------|------------------|
| | | | | Water soluble in nitrates and ammonia salts, per cent. | Water soluble organic, per cent. | Insoluble or active, per cent. | Inactive water, per cent. | Insoluble or organic, per cent. | Total water soluble, per cent. | | | | |
| | | | | guaranteed—found— | guaranteed—found— | guaranteed—found— | guaranteed—found— | guaranteed—found— | guaranteed—found— | | soluble and reverted, per cent. | insoluble, per cent. | total, per cent. |
| Smith Agricultural Chemical Company, Indianapolis Factory, Indianapolis, Ind. | 6971 | 7555 | Rushville | guaranteed—found— | 0.01 | 0.06 | 0.25 | 0.18 | 0.32 | 0.4 | 12.0 | 1.3 | 13.3 |
| Smiths No. 4 Wheat Maker & Seeding Down. | 6971 | 7619 | Mt. Vernon | guaranteed—found— | 0.06 | 0.01 | 0.17 | 0.32 | 0.18 | 0.5 | 12.4 | 1.6 | 14.0 |
| Chas. Hinkle | 6971 | 7751 | Greenwood | guaranteed—found— | 0.06 | 0.01 | 0.22 | 0.32 | 0.28 | 0.6 | 12.2 | 2.3 | 14.5 |
| E. E. Dawson | 6971 | 7751 | Greenwood | guaranteed—found— | 0.06 | 0.01 | 0.22 | 0.32 | 0.28 | 0.6 | 10.0 | 1.0 | 11.0 |
| Chester Stone | 6972 | 7510 | Rushville | guaranteed—found— | 0.11 | 0.14 | 0.21 | 0.34 | 0.46 | 0.8 | 10.0 | 2.1 | 12.1 |
| Smiths No. 1 General Crop | 6972 | 7823 | Seymour | guaranteed—found— | 0.16 | 0.01 | 0.42 | 0.41 | 0.59 | 1.0 | 10.8 | 1.0 | 11.8 |
| Chas. Hinkle | 6972 | 7823 | Seymour | guaranteed—found— | 0.48 | 0.11 | 0.58 | 0.53 | 1.17 | 1.7 | 10.4 | 2.8 | 13.2 |
| Seymour Hardware Co. | 6973 | 7851 | Brownsburg | guaranteed—found— | 0.46 | 0.28 | 0.61 | 0.35 | 1.35 | 1.8 | 9.9 | 2.0 | 11.9 |
| Smiths No. 4 Crop Producer | 6973 | 7851 | Brownsburg | guaranteed—found— | 0.46 | 0.28 | 0.61 | 0.35 | 1.35 | 1.8 | 9.9 | 2.0 | 11.9 |
| Seymour Hardware Co. | 6973 | 7851 | Brownsburg | guaranteed—found— | 0.46 | 0.28 | 0.61 | 0.35 | 1.35 | 1.8 | 9.9 | 2.0 | 11.9 |
| D. D. Socher | 6974 | 7682 | North Madison | guaranteed—found— | 0.13 | 0.02 | 0.27 | 0.48 | 0.42 | 0.9 | 1.1 | 7.1 | 8.2 |
| Smiths No. 3 Ammoniated Phos & Potash. | 6974 | 7709 | Dubois | guaranteed—found— | 0.17 | 0.01 | 0.30 | 0.32 | 0.48 | 0.8 | 1.1 | 7.1 | 8.2 |
| Geo. M. Keller | 6974 | 7709 | Dubois | guaranteed—found— | 0.17 | 0.01 | 0.30 | 0.32 | 0.48 | 0.8 | 1.1 | 7.1 | 8.2 |
| Ben Nordoff | 6974 | 7709 | Dubois | guaranteed—found— | 0.17 | 0.01 | 0.30 | 0.32 | 0.48 | 0.8 | 1.1 | 7.1 | 8.2 |
| Smiths No. 3 Corn Oats & Wheat Fertilizer | 6975 | 7511 | Rushville | guaranteed—found— | 0.02 | 0.03 | 0.15 | 0.30 | 0.20 | 0.5 | 2.0 | 8.5 | 1.7 |
| Chas. Hinkle | 6975 | 7511 | Rushville | guaranteed—found— | 0.02 | 0.03 | 0.15 | 0.30 | 0.20 | 0.5 | 2.0 | 8.5 | 1.7 |
| L. H. Dreyer | 6975 | 7859 | Salersburg | guaranteed—found— | 0.08 | 0.04 | 0.14 | 0.24 | 0.26 | 0.5 | 1.9 | 8.0 | 1.5 |
| Southern Fertilizer Company, Louisville, Ky. | 5486 | 6894 | Glenwood | guaranteed—found— | 0.35 | 0.11 | 0.08 | 0.16 | 0.54 | 0.7 | 1.0 | 7.3 | 1.0 |
| Elk Corn and Wheat Grower | 5486 | 6894 | Glenwood | guaranteed—found— | 0.35 | 0.11 | 0.08 | 0.16 | 0.54 | 0.7 | 1.0 | 7.3 | 1.0 |
| Murphy & Son | 5486 | 7584 | Evansville | guaranteed—found— | 0.62 | 0.02 | 0.13 | 0.23 | 0.77 | 1.0 | 1.1 | 7.2 | 0.1 |
| The Heldt Co. | 5906 | 7483 | Glenwood | guaranteed—found— | 0.17 | 0.04 | 0.08 | 0.21 | 0.29 | 0.5 | 1.0 | 10.0 | 1.0 |
| Elk General Crop Grower | 5906 | 7483 | Glenwood | guaranteed—found— | 0.17 | 0.04 | 0.08 | 0.21 | 0.29 | 0.5 | 1.0 | 10.0 | 1.0 |
| Murphy & Son | 5906 | 7585 | Evansville | guaranteed—found— | 0.15 | 0.08 | 0.08 | 0.27 | 0.23 | 0.5 | 0.9 | 10.0 | 0.7 |
| The Heldt Co. | 6121 | 6806 | Orleans | guaranteed—found— | 0.28 | 0.39 | 0.06 | 0.07 | 0.73 | 0.8 | 1.0 | 7.0 | 1.0 |
| Elk Special Lime Fertilizer | 6121 | 6806 | Orleans | guaranteed—found— | 0.28 | 0.39 | 0.06 | 0.07 | 0.73 | 0.8 | 0.9 | 7.2 | 0.6 |
| *Albert McIntosh | 6245 | 7873 | Borden | guaranteed—found— | 0.69 | 0.61 | 0.16 | 0.24 | 1.56 | 1.6 | 1.0 | 1.0 | 13.3 |
| Elk Phosphate | 6245 | 7873 | Borden | guaranteed—found— | 0.69 | 0.61 | 0.16 | 0.24 | 1.56 | 1.6 | 1.0 | 1.0 | 13.3 |
| J. N. Shoemaker | 6618 | 6895 | Glenwood | guaranteed—found— | 0.69 | 0.61 | 0.16 | 0.24 | 1.56 | 1.6 | 1.0 | 1.0 | 13.3 |
| Indiana Standard Guano | 6618 | 6895 | Glenwood | guaranteed—found— | 0.69 | 0.61 | 0.16 | 0.24 | 1.56 | 1.6 | 1.0 | 1.0 | 13.3 |
| *Murphy & Son | 6618 | 6895 | Glenwood | guaranteed—found— | 0.69 | 0.61 | 0.16 | 0.24 | 1.56 | 1.6 | 1.0 | 1.0 | 13.3 |
| Stadler Rendering & Fertilizer Co., The J. L. & H., Cleveland, Ohio. | 6659 | 6994 | Ft. Wayne | guaranteed—found— | 0.08 | 0.90 | 0.43 | 0.79 | 1.41 | 2.0 | 1.5 | 9.2 | 1.2 |
| Valley Phosphate | 6659 | 6994 | Ft. Wayne | guaranteed—found— | 0.08 | 0.90 | 0.43 | 0.79 | 1.41 | 2.0 | 1.5 | 9.2 | 1.2 |
| *Reed Bros. Feed Co. | 6660 | 7856 | Bluffton | guaranteed—found— | 0.15 | 0.21 | 0.54 | 0.36 | 0.93 | 0.9 | 1.0 | 8.4 | 3.5 |
| 16% Acid Phosphate | 6660 | 7856 | Bluffton | guaranteed—found— | 0.15 | 0.21 | 0.54 | 0.36 | 0.93 | 0.9 | 1.0 | 8.4 | 3.5 |
| Hartman & Dotterer | 6661 | 6994 | Bluffton | guaranteed—found— | 0.15 | 0.21 | 0.54 | 0.36 | 0.93 | 0.9 | 1.0 | 8.4 | 3.5 |
| Harvest King | 6661 | 6994 | Bluffton | guaranteed—found— | 0.15 | 0.21 | 0.54 | 0.36 | 0.93 | 0.9 | 1.0 | 8.4 | 3.5 |

| Vegetable Manure | | 6862 | 6863 | Ft. Wayne | guaranteed | 0.17 | 0.57 | 0.30 | 0.35 | 1.04 | 1.2 | 12.0 | 11.7 | 2.1 |
|---|--|------|------|------------|------------|------|------|------|------|------|------|------|------|-----|
| *Reed Bros. Feed Co. | | 6862 | 6863 | guaranteed | found | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Stadler's Onion Growers Special | | 6914 | --- | guaranteed | found | 0.20 | 0.08 | 0.44 | 0.58 | 1.32 | 0.8 | 8.0 | 3.0 | 8.0 |
| *C. A. Hardy 105 | | 6914 | --- | found | found | 0.04 | 0.80 | 0.54 | 0.52 | 1.38 | 1.9 | 2.6 | 7.6 | 2.8 |
| *J. H. Bowling 106 | | 6914 | 7048 | --- | --- | --- | --- | --- | --- | --- | --- | 7.2 | 3.0 | 2.7 |
| Sterling Fertilizer Company, The, Chicago, Ill. | | | | | | | | | | | | | | |
| Sterling Special Grain Grower | | 6639 | --- | guaranteed | found | --- | --- | --- | --- | --- | 0.8 | 1.0 | 9.0 | 2.0 |
| *Ellettsville Milling Co. | | 6639 | 7407 | guaranteed | found | 0.32 | 0.10 | 0.40 | 0.38 | 0.82 | 1.2 | 1.0 | 9.7 | 2.5 |
| Sterling Golden Harvest Fertilizer | | 6641 | --- | guaranteed | found | --- | --- | --- | --- | --- | 0.8 | 0.5 | 10.0 | 2.0 |
| *Ellettsville Milling Co. | | 6641 | 7408 | found | found | 0.09 | 0.41 | 0.26 | 0.24 | 0.76 | 1.0 | 0.5 | 12.4 | 1.2 |
| Swift & Company, Chicago, Ill. | | | | | | | | | | | | | | |
| Swift's Garden City Phosphate | | 2716 | --- | guaranteed | found | --- | --- | --- | --- | --- | --- | 14.0 | 14.0 | --- |
| *Dillsboro Milling Co. | | 2716 | 7362 | guaranteed | found | --- | --- | --- | --- | --- | --- | 14.9 | 14.9 | 1.2 |
| Swift's Pure Bone Meal & Blood | | 3889 | 7500 | guaranteed | found | 0.11 | 1.35 | 1.52 | 0.81 | 2.99 | 3.7 | 23.0 | 22.4 | --- |
| Abe Bossert 107 | | 4871 | --- | guaranteed | found | 0.46 | 0.36 | 0.41 | 0.57 | 1.6 | 1.6 | 2.0 | 12.0 | 1.0 |
| Swift's Pure Champion Wheat & Corn Grower | | 4871 | 6750 | found | found | 0.60 | 0.41 | 0.38 | 0.41 | 1.29 | 1.7 | 2.1 | 12.0 | 2.1 |
| *Jacob Finkle 108 | | 4871 | 6902 | guaranteed | found | --- | --- | --- | --- | --- | 1.6 | 2.0 | 8.0 | 1.0 |
| *John P. Frazee | | 4873 | --- | guaranteed | found | 0.53 | 0.27 | 0.40 | 0.40 | 1.20 | 1.6 | 2.1 | 6.9 | 1.9 |
| Swift's Pure Superphosphate | | 4873 | 6749 | found | found | 0.18 | 0.87 | 0.26 | 0.39 | 1.31 | 1.7 | 1.5 | 8.2 | 2.4 |
| *Jacob Finkle | | 4873 | 7807 | guaranteed | found | --- | --- | --- | --- | --- | 2.5 | 3.0 | 8.0 | 1.0 |
| *John Struwing & Co. | | 4907 | 7355 | found | found | 0.98 | 0.26 | 0.43 | 0.63 | 1.67 | 2.3 | 2.6 | 7.1 | 1.7 |
| Swift's Diamond A. Fertilizer | | 5154 | --- | guaranteed | found | --- | --- | --- | --- | --- | 0.8 | 1.0 | 8.0 | 1.0 |
| *John Struwing | | 5154 | 6927 | guaranteed | found | 0.27 | 0.08 | 0.36 | 0.29 | 0.71 | 1.0 | 1.0 | 8.0 | 1.3 |
| Swift's Pure Complete Fertilizer | | 5154 | 7149 | found | found | 0.21 | 0.18 | 0.28 | 0.23 | 0.46 | 1.0 | 1.0 | 8.5 | 1.4 |
| *Huebner Hardware Co. | | 5154 | 7611 | found | found | 0.13 | 0.28 | 0.17 | 0.22 | 0.58 | 0.8 | 0.8 | 9.3 | 1.3 |
| Vorbarg-Phillips Co. | | 5154 | 7621 | found | found | 0.09 | 0.27 | 0.14 | 0.30 | 0.50 | 0.8 | 0.8 | 8.0 | 1.4 |
| *Joe F. Deig 110 | | 5185 | --- | guaranteed | found | --- | --- | --- | --- | --- | 15.2 | --- | --- | --- |
| Swift's Nitrate of Soda | | 5185 | 7115 | found | found | 15.4 | --- | --- | --- | 15.4 | 15.4 | --- | --- | --- |
| *J. Napier Dyer | | 5186 | --- | guaranteed | found | --- | --- | --- | --- | --- | 2.0 | --- | --- | --- |
| Swift's Ground Beef Bone | | 5186 | 7501 | guaranteed | found | 0.04 | 0.22 | 1.47 | 0.57 | 1.73 | 2.3 | --- | --- | --- |
| Abe Bossert | | 5369 | --- | guaranteed | found | --- | --- | --- | --- | --- | --- | 16.0 | --- | --- |
| Swift's High Grade Acid Phosphate | | 5369 | 6707 | found | found | --- | --- | --- | --- | --- | --- | 16.2 | --- | 1.1 |
| *Home Grain Co. | | 5369 | 6926 | found | found | --- | --- | --- | --- | --- | --- | 16.6 | --- | 1.3 |
| *Geo. R. Smith 111 | | 5369 | 7124 | found | found | 0.33 | 0.07 | 0.29 | 0.31 | 0.69 | 1.0 | 2.7 | 12.3 | 1.8 |
| *W. D. Simpkins 112 | | 5369 | 7157 | found | found | --- | --- | --- | --- | --- | --- | 16.7 | 0.8 | --- |
| *Wilbur Lutes | | 5369 | --- | guaranteed | found | --- | --- | --- | --- | --- | 0.8 | 3.0 | 8.0 | 0.5 |
| Swift's 1-8-3 Fertilizer | | 5710 | 7023 | found | found | 0.46 | 0.03 | 0.19 | 0.22 | 0.68 | 0.8 | 3.1 | 8.6 | 1.8 |
| *Franklin MacVeagh & Co. | | 5710 | --- | guaranteed | found | --- | --- | --- | --- | --- | 0.8 | 1.0 | 12.0 | 0.5 |
| Swift's Diamond K. Grain Grower | | 5791 | 6905 | found | found | 0.21 | 0.20 | 0.29 | 0.30 | 0.70 | 1.0 | 0.9 | 12.0 | 0.5 |
| *J. B. Hawkins | | 5791 | 6901 | found | found | 0.39 | 0.01 | 0.33 | 0.27 | 0.73 | 1.0 | 1.0 | 12.5 | 1.8 |
| *John P. Frazee | | 5791 | 6925 | found | found | 0.14 | 0.07 | 0.23 | 0.35 | 0.44 | 0.8 | 1.0 | 13.6 | 0.7 |
| *Crosby Bros. 113 | | 5791 | --- | found | found | 0.27 | 0.06 | 0.32 | 0.25 | 0.65 | 0.9 | 0.9 | 12.4 | 2.1 |
| *John Dolezal & Co. | | 5791 | 7331 | found | found | --- | --- | --- | --- | --- | --- | --- | --- | --- |

* Sample received in the spring
102 Refund (see page 30)

103 Sample to Mr. (see page 33)

104 Purchased from Mark Stevens

105 Sample to Mr. (see page 33)

106 Purchased from C. S. Southwick, Kendallville

107 Sample contains approx. 36 lbs. salt and 66 lbs. gypsum per ton.

Egg shells present (see page 32)

108 Not labeled. Withdrawn. Labels furnished (see page 32)

109 Not labeled. Withdrawn. Labels furnished (see page 32)

110 Purchased from Weinsapfel & Goebel

111 Purchased from John A. Sheets, College Corner. Not labeled.

Withdrawn. Labels furnished (see page 32)

112 Improperly labeled

113 Purchased from John A. Sheets, College Corner. Not labeled.
Withdrawn. Labels furnished (see page 32)

TABLE VI.—Report of Inspection of Fertilizers Collected in 1917 (continued)

| Label and names of persons from whom samples were secured | Official No. | Inspection No. B3 | Sample taken at | Nitrogen, N | | | | | | Potash, K ₂ O, soluble in water, per cent. | Phosphoric acid, P ₂ O ₅ | | | |
|---|--------------|-------------------|-----------------|---|----------------------------------|---|---|--|------------------|---|--|----------------------|------------------|------|
| | | | | Water soluble nitrates and ammonia salts, per cent. | Water soluble organic, per cent. | Active water-insoluble or-ranlic, per cent. | Inactive water-insoluble or-ranlic, per cent. | Total water-sol-uble and active, per cent. | Total, per cent. | | Soluble and re-verted, per cent. | Insoluble, per cent. | Total, per cent. | |
| Swift & Company, Chicago, Ill. | | | | | | | | | | | | | | |
| Swift's Diamond L. Grain Grower | 5792 | 7022 | Clarks Hill | 0.47 | 0.49 | 0.50 | 0.24 | 1.46 | 1.6 | 1.0 | 12.0 | 12.0 | 1.0 | 13.0 |
| *Franklin MacVeagh & Co. | 5792 | 7022 | Clarks Hill | 0.47 | 0.49 | 0.50 | 0.24 | 1.46 | 1.7 | 1.1 | 12.1 | 12.1 | 1.7 | 13.8 |
| Swift's Muck Soil Fertilizer | 6081 | 6706 | Lagrange | 0.39 | 0.17 | 0.39 | 0.25 | 0.95 | 1.2 | 2.8 | 12.2 | 12.2 | 0.5 | 12.7 |
| *Home Grain Co. | 6081 | 6706 | Lagrange | 0.39 | 0.17 | 0.39 | 0.25 | 0.95 | 1.2 | 2.8 | 12.2 | 12.2 | 0.5 | 12.7 |
| *W. D. Simpkins | 6081 | 7125 | Macy | 0.32 | 0.09 | 0.32 | 0.17 | 0.73 | 0.8 | 2.7 | 12.4 | 12.4 | 1.7 | 14.1 |
| Swift's Bone Meal and Phosphate | 6199 | 6929 | Kitchel | 0.23 | 0.49 | 0.23 | 0.72 | 1.0 | 0.8 | 13.0 | 13.0 | 7.0 | 20.0 | 27.0 |
| *John Sheets 114 | 6199 | 6929 | Kitchel | 0.23 | 0.49 | 0.23 | 0.72 | 1.0 | 1.0 | 1.0 | 11.9 | 11.9 | 9.3 | 21.2 |
| Swift's Special Superphosphate | 6366 | 7259 | North Vernon | 0.09 | 0.16 | 0.45 | 0.30 | 0.70 | 1.0 | 1.0 | 10.3 | 10.3 | 10.3 | 20.6 |
| *Verbarg-Phillips Co. | 6366 | 7259 | North Vernon | 0.09 | 0.16 | 0.45 | 0.30 | 0.70 | 1.0 | 1.0 | 10.3 | 10.3 | 10.3 | 20.6 |
| *Home Grain Co. | 6366 | 6705 | Lagrange | 0.37 | 0.28 | 0.54 | 0.51 | 1.19 | 1.6 | 1.0 | 7.1 | 7.1 | 2.3 | 9.4 |
| Swift's Clay Soil Special | 6367 | 6705 | Lagrange | 0.37 | 0.28 | 0.54 | 0.51 | 1.19 | 1.6 | 1.0 | 7.1 | 7.1 | 2.3 | 9.4 |
| *R. J. Spencer | 6367 | 6711 | Marion | 0.50 | 0.13 | 0.58 | 0.49 | 1.21 | 1.7 | 1.7 | 12.3 | 12.3 | 1.8 | 14.1 |
| *John Vogel | 6367 | 6857 | Dubois | 0.46 | 0.12 | 0.72 | 0.40 | 1.30 | 1.7 | 1.7 | 12.3 | 12.3 | 2.1 | 14.4 |
| *W. J. Adams 115 | 6367 | 6857 | Dubois | 0.46 | 0.12 | 0.72 | 0.40 | 1.30 | 1.7 | 1.7 | 12.3 | 12.3 | 2.1 | 14.4 |
| Swift's 1/2-10-1 Fertilizer | 6367 | 7187 | Elizabethtown | 0.20 | 0.50 | 0.62 | 0.38 | 1.32 | 1.7 | 1.7 | 11.3 | 11.3 | 3.1 | 14.4 |
| *G. A. Hillemeier | 6368 | 7187 | Elizabethtown | 0.20 | 0.50 | 0.62 | 0.38 | 1.32 | 1.7 | 1.7 | 11.3 | 11.3 | 3.1 | 14.4 |
| Swift's Tankage and Bone Phosphate | 6368 | 6875 | Huntingburg | 0.20 | 0.20 | 0.20 | 0.40 | 0.6 | 0.4 | 1.0 | 10.0 | 10.0 | 0.7 | 10.7 |
| *Verbarg-Phillips Co. | 6368 | 6875 | Huntingburg | 0.20 | 0.20 | 0.20 | 0.40 | 0.6 | 0.4 | 1.0 | 10.0 | 10.0 | 0.7 | 10.7 |
| S. W. Barnhisser | 6368 | 7612 | North Vernon | 0.06 | 0.15 | 0.13 | 0.16 | 0.34 | 0.5 | 0.8 | 9.6 | 9.6 | 1.7 | 11.3 |
| *M. Frank Creager 116 | 6370 | 7729 | New Augusta | 0.06 | 0.16 | 0.14 | 0.14 | 0.36 | 0.5 | 1.0 | 9.7 | 9.7 | 1.3 | 11.0 |
| Swift's Tankage and Bone Phosphate | 6370 | 7729 | New Augusta | 0.06 | 0.16 | 0.14 | 0.14 | 0.36 | 0.5 | 1.0 | 9.7 | 9.7 | 1.3 | 11.0 |
| *John Vogel | 6370 | 6936 | Butler | 0.18 | 0.08 | 0.28 | 0.26 | 0.54 | 0.8 | 0.8 | 12.6 | 12.6 | 1.0 | 13.6 |
| *Letts Hardware Co. | 6370 | 6936 | Butler | 0.18 | 0.08 | 0.28 | 0.26 | 0.54 | 0.8 | 0.8 | 12.6 | 12.6 | 1.0 | 13.6 |
| *John Sheets 117 | 6370 | 6858 | Dubois | 0.29 | 0.06 | 0.48 | 0.27 | 0.83 | 1.1 | 1.1 | 12.1 | 12.1 | 1.6 | 13.7 |
| John H. Kerstiens | 6370 | 6891 | Letts | 0.52 | 0.01 | 0.63 | 0.14 | 1.16 | 1.3 | 1.3 | 13.0 | 13.0 | 1.4 | 14.4 |
| Swift's Tomato & Vegetable Grower | 6370 | 6925 | Kitchel | 0.15 | 0.14 | 0.40 | 0.31 | 0.69 | 1.0 | 1.0 | 12.5 | 12.5 | 1.6 | 14.1 |
| *Henryville Supply Co. | 6370 | 7664 | Ferdinand | 0.03 | 0.02 | 0.25 | 0.50 | 0.30 | 0.8 | 0.8 | 12.3 | 12.3 | 1.8 | 14.1 |
| *J. D. Martin | 6595 | 7284 | Henryville | 1.33 | 0.33 | 0.41 | 0.53 | 2.07 | 2.4 | 0.5 | 8.0 | 8.0 | 1.0 | 9.0 |
| Swift's Sheep Manure Fertilizer | 6595 | 7412 | Lafayette | 0.91 | 0.63 | 0.71 | 0.55 | 2.25 | 2.6 | 0.5 | 8.0 | 8.0 | 1.4 | 9.4 |
| *New Castle Elevator Co. | 6864 | 7138 | New Castle | 0.25 | 0.04 | 0.40 | 1.21 | 0.69 | 1.6 | 2.0 | 8.4 | 8.4 | 1.6 | 10.0 |
| Swift's Special Half and Half Fertilizer | 6915 | 6920 | Ferdinand | 0.17 | 0.34 | 0.40 | 0.40 | 0.69 | 1.9 | 2.7 | 6.0 | 6.0 | 10.0 | 16.0 |
| John H. Kerstiens | 6915 | 6920 | Ferdinand | 0.17 | 0.34 | 0.40 | 0.40 | 0.69 | 1.9 | 2.7 | 6.0 | 6.0 | 10.0 | 16.0 |
| Swift's Bone Meal & Phosphate Fertilizer | 6932 | 7665 | Ferdinand | 0.31 | 0.02 | 0.64 | 0.83 | 0.97 | 1.8 | 6.9 | 6.9 | 8.9 | 9.9 | 27.8 |
| Henryville Supply Co. | 6932 | 7665 | Ferdinand | 0.31 | 0.02 | 0.64 | 0.83 | 0.97 | 1.8 | 6.9 | 6.9 | 8.9 | 9.9 | 27.8 |
| Swift's Ground Beef Bone Fertilizer | 6937 | 7842 | Henryville | 0.04 | 0.17 | 0.43 | 0.26 | 0.64 | 0.9 | 0.8 | 13.0 | 13.0 | 7.0 | 20.0 |
| Thornburg Bros. | 6937 | 7842 | Henryville | 0.04 | 0.17 | 0.43 | 0.26 | 0.64 | 0.9 | 0.8 | 13.0 | 13.0 | 7.0 | 20.0 |
| Swift's Wheat and Rye Special | 6981 | 7566 | Boonville | 0.15 | 0.15 | 1.24 | 0.81 | 1.39 | 2.2 | 2.2 | 11.5 | 11.5 | 10.3 | 21.8 |
| E. H. Sears | 6981 | 7566 | Boonville | 0.15 | 0.15 | 1.24 | 0.81 | 1.39 | 2.2 | 2.2 | 11.5 | 11.5 | 10.3 | 21.8 |
| | 6981 | 7817 | Knightstown | 0.49 | 0.15 | 0.39 | 0.37 | 1.03 | 1.6 | 1.0 | 10.0 | 10.0 | 1.0 | 11.0 |
| | 6981 | 7817 | Knightstown | 0.49 | 0.15 | 0.39 | 0.37 | 1.03 | 1.6 | 1.0 | 9.0 | 9.0 | 2.5 | 11.5 |

| | | | | | | | | | | | |
|------|--|------------|------|------|------|------|------|-----|------|------|------|
| 6254 | Special Grain Grower Formula | guaranteed | 0.21 | 0.01 | 0.12 | 0.16 | 0.34 | 0.4 | 2.0 | 8.0 | 0.5 |
| 6254 | *Ben Bolte & Sons | found | 0.17 | 0.01 | 0.05 | 0.17 | 0.23 | 0.4 | 1.6 | 7.9 | 0.1 |
| 6254 | *Ben Bolte & Sons | guaranteed | 0.14 | 0.07 | 0.09 | 0.20 | 0.30 | 0.5 | 1.0 | 8.0 | 0.5 |
| 6407 | Ox Grain Grower Special | found | 0.14 | 0.07 | 0.09 | 0.20 | 0.30 | 0.5 | 0.9 | 7.1 | 0.1 |
| 6407 | *Ben Bolte & Sons | found | 0.14 | 0.07 | 0.09 | 0.20 | 0.30 | 0.5 | 0.9 | 7.1 | 0.1 |
| 3425 | Tennessee Chemical Company, Nashville, Tenn. | guaranteed | 0.49 | 0.04 | 0.14 | 0.23 | 0.67 | 0.8 | 1.0 | 7.0 | 1.0 |
| 3425 | Ox Indiana Special Corn Grover | found | 0.49 | 0.04 | 0.14 | 0.23 | 0.67 | 0.8 | 1.0 | 7.0 | 1.0 |
| 4619 | *Ben Bolte & Sons | guaranteed | 0.01 | 0.14 | 2.97 | 0.80 | 3.11 | 4.0 | 22.0 | 22.0 | 22.0 |
| 4619 | Ox Standard Raw Bone | found | 0.01 | 0.21 | 2.94 | 0.54 | 3.16 | 3.7 | 23.9 | 23.9 | 23.9 |
| 4619 | *Ben Bolte & Sons | found | 0.01 | 0.21 | 2.94 | 0.54 | 3.16 | 3.7 | 23.9 | 23.9 | 23.9 |
| 4619 | Ben Bolte & Sons 118 | found | 0.01 | 0.21 | 2.94 | 0.54 | 3.16 | 3.7 | 23.9 | 23.9 | 23.9 |
| 4530 | Tuscarora Fertilizer Company, Chicago, Ill. | guaranteed | 0.25 | 0.12 | 0.26 | 0.37 | 0.63 | 0.8 | 2.0 | 8.0 | 0.5 |
| 4530 | Norris' Special Corn & Wheat No. 2 | found | 0.25 | 0.12 | 0.26 | 0.37 | 0.63 | 0.8 | 2.0 | 8.0 | 0.5 |
| 4530 | *A. B. Norris | guaranteed | 0.08 | 0.48 | 0.55 | 0.49 | 1.11 | 1.6 | 10.0 | 10.0 | 10.0 |
| 6033 | Tuscarora 16% Acid Phosphate | found | 0.08 | 0.48 | 0.55 | 0.49 | 1.11 | 1.6 | 10.0 | 10.0 | 10.0 |
| 6033 | John S. Capper | found | 0.08 | 0.48 | 0.55 | 0.49 | 1.11 | 1.6 | 10.0 | 10.0 | 10.0 |
| 6475 | Tuscarora Tankage & Phosphate | guaranteed | 0.17 | 0.22 | 0.53 | 0.28 | 0.92 | 1.2 | 10.1 | 10.1 | 10.1 |
| 6475 | O. L. Cagle | found | 0.17 | 0.22 | 0.53 | 0.28 | 0.92 | 1.2 | 10.1 | 10.1 | 10.1 |
| 6563 | A. B. Norris Fertilizer Company Special Corn | guaranteed | 0.02 | 0.33 | 0.32 | 0.33 | 0.67 | 1.0 | 12.0 | 12.0 | 12.0 |
| 6563 | Fertilizer | found | 0.02 | 0.33 | 0.32 | 0.33 | 0.67 | 1.0 | 12.2 | 12.2 | 12.2 |
| 6563 | *A. B. Norris | guaranteed | 0.06 | 0.05 | 0.52 | 0.27 | 0.63 | 0.9 | 0.8 | 29.7 | 29.7 |
| 6710 | A. B. Norris Fertilizer Company Wheat & Clover | found | 0.06 | 0.05 | 0.52 | 0.27 | 0.63 | 0.9 | 0.8 | 32.9 | 32.9 |
| 6710 | Special | guaranteed | 0.03 | 0.39 | 0.20 | 0.28 | 0.62 | 0.9 | 15.0 | 15.0 | 15.0 |
| 6710 | A. B. Norris | found | 0.03 | 0.39 | 0.20 | 0.28 | 0.62 | 0.9 | 15.4 | 15.4 | 15.4 |
| 6907 | United Chemical & Organic Products Company, The, Chicago, Ill. | guaranteed | 0.09 | 0.33 | 0.19 | 0.29 | 0.61 | 0.9 | 14.8 | 14.8 | 14.8 |
| 6907 | Calumet Special Pure Bone Meal | found | 0.14 | 0.29 | 0.22 | 0.15 | 0.65 | 0.8 | 15.0 | 15.0 | 15.0 |
| 6907 | Theodore Stunkel | guaranteed | 0.28 | 0.04 | 0.16 | 0.42 | 0.48 | 0.9 | 0.6 | 11.1 | 2.3 |
| 7000 | Calumet Ammoniated Bone Phosphate | found | 0.04 | 0.08 | 0.24 | 0.54 | 0.36 | 0.9 | 0.6 | 10.9 | 2.1 |
| 7000 | D. M. Baldrige | guaranteed | 0.04 | 0.08 | 0.24 | 0.54 | 0.36 | 0.9 | 0.6 | 10.9 | 2.1 |
| 7000 | H. R. Smith 119 | found | 0.04 | 0.08 | 0.24 | 0.54 | 0.36 | 0.9 | 0.6 | 10.9 | 2.1 |
| 7000 | A. M. Bohner | guaranteed | 0.04 | 0.08 | 0.24 | 0.54 | 0.36 | 0.9 | 0.6 | 10.9 | 2.1 |
| 7001 | Calumet Hummer Grain Grower | found | 0.04 | 0.08 | 0.24 | 0.54 | 0.36 | 0.9 | 0.6 | 10.9 | 2.1 |
| 7001 | D. M. Baldrige | guaranteed | 0.04 | 0.08 | 0.24 | 0.54 | 0.36 | 0.9 | 0.6 | 10.9 | 2.1 |
| 7001 | Hardin & Wade | found | 0.04 | 0.08 | 0.24 | 0.54 | 0.36 | 0.9 | 0.6 | 10.9 | 2.1 |
| 5181 | Virginia-Carolina Chemical Company, Cincinnati Division, Cincinnati, Ohio. | guaranteed | 1.05 | 0.14 | 0.31 | 0.40 | 1.50 | 1.6 | 2.0 | 8.0 | 1.2 |
| 5181 | V-O Complete Fertilizer | found | 1.05 | 0.14 | 0.31 | 0.40 | 1.50 | 1.6 | 2.0 | 8.0 | 1.2 |
| 5221 | *Briggs & Foust | guaranteed | 0.38 | 0.21 | 0.20 | 0.31 | 0.79 | 1.1 | 1.9 | 8.8 | 2.0 |
| 5221 | V-O Champion Corn & Wheat Grower | found | 0.38 | 0.21 | 0.20 | 0.31 | 0.79 | 1.1 | 1.9 | 8.8 | 2.0 |
| 5221 | *Briggs & Foust 120 | guaranteed | 0.38 | 0.21 | 0.20 | 0.31 | 0.79 | 1.1 | 1.9 | 8.8 | 2.0 |
| 5221 | *Davis Grain Co. | found | 0.38 | 0.21 | 0.20 | 0.31 | 0.79 | 1.1 | 1.9 | 8.8 | 2.0 |
| 5221 | *Geo. A. Wilhelm | guaranteed | 0.38 | 0.21 | 0.20 | 0.31 | 0.79 | 1.1 | 1.9 | 8.8 | 2.0 |
| 5951 | V-O 26% Acid Phosphate | found | 0.38 | 0.21 | 0.20 | 0.31 | 0.79 | 1.1 | 1.9 | 8.8 | 2.0 |
| 5951 | *B. F. Shanes Canning Co. | guaranteed | 0.38 | 0.21 | 0.20 | 0.31 | 0.79 | 1.1 | 1.9 | 8.8 | 2.0 |
| 5951 | *Milford Hardware Co. | found | 0.38 | 0.21 | 0.20 | 0.31 | 0.79 | 1.1 | 1.9 | 8.8 | 2.0 |
| 5951 | Letts Hardware Co. | guaranteed | 0.38 | 0.21 | 0.20 | 0.31 | 0.79 | 1.1 | 1.9 | 8.8 | 2.0 |
| 5951 | Letts | found | 0.38 | 0.21 | 0.20 | 0.31 | 0.79 | 1.1 | 1.9 | 8.8 | 2.0 |

* Sample received in the spring
 114 Not labeled. Withdrawn. Labels furnished (see page 32)
 115 Purchased from J. V. Wright, Columbus
 116 Purchased from J. B. Hawkins
 117 Not labeled. Withdrawn. Labels furnished (see page 32)
 118 Sample contains approx. 80 lbs. sand per ton (see page 32)
 119 Purchased from P. Dörner & Sons Co., Frankfort, Ind.
 120 Sample to Mfr. (see page 33)

| | | | | | | | | | | | | |
|--|--------------|------|--------------|---------------------|------|------|------|------|------|-----|------|-----|
| Welman, Augustus, Hagerstown, Ind. "One-Twelve" *Augustus Welman | 6225 6225 | 6978 | Hagerstown | guaranteed found | 0.08 | 0.63 | 0.40 | 0.19 | 1.11 | 1.3 | 12.7 | 1.7 |
| Western Fertilizer Works, Indianapolis, Ind. Available Plant Food *Arthur E. Binford | 6227 6227 | 7135 | Greenfield | guaranteed found | 0.10 | 0.70 | 0.13 | 0.27 | 0.93 | 1.2 | 10.0 | 1.1 |
| 16% High Grade Phosphate *Arthur E. Binford | 6262 6262 | 7136 | Greenfield | guaranteed found | | | | | | | 16.0 | 0.3 |
| Corn King *J. W. Holder | 6263 6263 | 7388 | Hope | guaranteed found | 0.07 | 0.28 | 0.14 | 0.31 | 0.49 | 0.8 | 12.0 | 1.2 |
| Special Spring Fertilizer *Arthur E. Binford | 6264 6264 | 7137 | Greenfield | guaranteed found | 0.07 | 0.10 | 0.11 | 0.32 | 0.28 | 0.4 | 13.0 | 1.3 |
| Wuitchet Fertilizer Company, The, Dayton, Ohio. "Superior Pure Raw Bone" Theo. Kline | 3597 3597 | 7552 | Greensburg | guaranteed found | 0.11 | 0.73 | 1.66 | 0.70 | 2.50 | 3.0 | 23.0 | |
| Albert McIntosh | 3597 | 7384 | Orleans | guaranteed | 0.18 | 0.12 | 2.54 | 1.16 | 2.84 | 4.0 | 24.6 | |
| 16% Acid Phosphate *W. C. Davis | 6243 6243 | 6908 | Connersville | guaranteed found | | | | | | | 16.0 | 1.0 |
| "E" Spot Cash Fertilizer Theo. Kline | 6558 6558 | 7553 | Greensburg | guaranteed found | | | | | | | 17.1 | 0.7 |
| Samuel Goss | 6558 | 7574 | Borden | guaranteed | 0.70 | 0.09 | 0.45 | 0.46 | 1.24 | 1.6 | 1.0 | 2.1 |
| "F" Ammonia Special *F. E. Threewit | 6560 6560 | 6960 | Centerville | guaranteed found | 0.74 | 0.42 | 0.48 | 0.26 | 0.64 | 1.6 | 10.0 | 1.0 |
| Roy Doyle | 6560 | 7303 | Osgood | found | 0.42 | 0.28 | 0.48 | 0.42 | 1.18 | 1.6 | 11.6 | 4.2 |
| Joe Gisting | 6560 | 7808 | Batesville | found | 0.72 | 0.15 | 0.44 | 0.39 | 1.31 | 1.7 | 11.2 | 1.9 |
| Albert McIntosh | 6560 | 7988 | Orleans | found | 0.04 | 0.80 | 0.40 | 0.46 | 1.24 | 1.7 | 11.5 | 1.9 |

¹²³ Purchased from Oxford Hardware Co., Oxford, Ohio. Not labeled.

Withdrawn. Labels furnished (see page 32)

¹²⁴ Sample to Mfr. (see page 33)

* Sample received in the spring
¹²¹ Purchased from Geo. W. Wagner
¹²² Sample to Mfr. (see page 33)

TABLE VII.—Mechanical Condition (Fineness) of Rock Phosphate Samples Secured in 1917

| LABEL | Number | | Taken at | Total phosphoric acid, P_2O_5 , per cent. | | Passing, per cent.* | | | Not passing 80 mesh, per cent. |
|---|----------|----------------|--------------------|---|-------|---------------------|---------|----------|--------------------------------|
| | Official | Inspection BB. | | Guaranteed | Found | 50 mesh | 80-mesh | 100 mesh | |
| Buhner, Ferdinand F., Seymour, Ind. Rock Phosphate ----- | 5565 | 7179 | Seymour ----- | 28.0 | 31.1 | 98 | 87 | 83 | 13 |
| Farmers Ground Rock Phosphate Company, Mt. Pleasant, Tenn. "Farmers Ground Phosphate XXX Brand" ----- | 4896 | 6669 | Morocco ----- | 30.0 | 29.6 | 99 | 81 | 80 | 19 |
| Federal Chemical Company, Louisville, Ky. Daybreak Ground Phosphate Rock ----- | 5252 | 6748 | Bluffton ----- | 29.7 | 29.0 | 95 | 87 | 82 | 13 |
| Daybreak Ground Phosphate Rock ----- | 5252 | 7503 | Carlisle ----- | 29.7 | 30.5 | 98 | 91 | 88 | 9 |
| Daybreak Tennessee Brown Phosphate Rock ----- | 6976 | 7655 | Dale ----- | 32.0 | 32.8 | 95 | 86 | 83 | 14 |
| Daybreak Tennessee Brown Phosphate Rock ----- | 6976 | 7928 | Royal Center ---- | 32.0 | 33.5 | 99 | 91 | 88 | 9 |
| Mt. Pleasant Fertilizer Company, Inc., Mt. Pleasant, Tenn. Mt. Pleasant Untreated Phosphate ----- | 4198 | 6642 | Mt. Vernon ----- | 28.0 | 31.9 | 98 | 88 | 84 | 12 |
| Mt. Pleasant Untreated Phosphate ----- | 4198 | 6670 | Brook ----- | 28.0 | 32.7 | 95 | 81 | 75 | 19 |
| Ruhm, Jr., John, Mt. Pleasant, Tenn. Ground Phosphate Rock ----- | 4480 | 6663 | Pine Village ----- | 23.0 | 31.4 | 100 | 98 | 98 | 2 |
| Ground Phosphate Rock ----- | 4480 | 7417 | Laketon ----- | 23.0 | 30.8 | 98 | 94 | 90 | 6 |

* Siftings made by the dry method

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Alphano Humus Company, New York, N. Y. | | | | | | |
| Alphano Humus | 6702 | 1.2 | 0.5 | 0.5 | 0.5 | --- |
| Prepared Alphano Humus | 6928 | 1.2 | 0.5 | 0.5 | 0.5 | --- |
| American Agricultural Chemical Company, The, New York, N. Y. | | | | | | |
| Cleveland Dryer, XXX Superphosphate | 2803 | --- | --- | 14.0 | --- | --- |
| Zell's Dissolved Bone Phosphate | 2809 | --- | --- | 14.0 | --- | --- |
| Bradley's Corn & Wheat Phosphate | 2813 | 0.8 | 1.0 | 10.0 | --- | --- |
| Bradley's Niagara Phosphate | 2817 | 0.8 | 1.0 | 7.0 | --- | --- |
| Reese, Half & Half | 2880 | 0.8 | 1.0 | 7.0 | --- | --- |
| Reese, Elm Phosphate | 2881 | --- | --- | 14.0 | --- | --- |
| Nitrate of Soda | 4649 | 15.0 | --- | --- | --- | --- |
| Bradley's Soluble Dissolved Bone Phosphate | 5921 | --- | --- | 14.0 | --- | --- |
| 16% Acid Phosphate | 5923 | --- | --- | 16.0 | 1.0 | --- |
| American Agricultural Chemical Company, The, Bowker Fertilizer Works, Cincinnati, Ohio | | | | | | |
| Bowker's Grain & Grass Grower | 4626 | 1.6 | 2.0 | 8.0 | 1.5 | --- |
| Bowker's Fish Guano | 4633 | 0.8 | 3.0 | 8.0 | 1.5 | --- |
| Bowker's 16% Acid Phosphate | 5316 | --- | --- | 16.0 | --- | --- |
| Bowker's Harvest Bone Phosphate | 5764 | 0.8 | 1.0 | 8.0 | --- | --- |
| Bowker's Soluble Phosphate | 5765 | --- | --- | 14.0 | --- | --- |
| Bowker's Special Wheat Grower | 6201 | 0.8 | 1.0 | 10.0 | --- | --- |
| Bowker's High Grade Fertilizer, 1916 | 6265 | 2.4 | 1.0 | 10.0 | --- | --- |
| Bowker's General Crop | 6266 | 1.6 | 1.0 | 10.0 | --- | --- |
| Bowker's Special, 1916 | 6267 | 2.0 | 1.0 | 8.0 | --- | --- |
| Bowker's 2-12 Ammoniated Acid Phosphate | 6269 | 1.6 | --- | 12.0 | --- | --- |
| Bowker's 2-10 Ammoniated Acid Phosphate | 6270 | 1.6 | --- | 10.0 | --- | --- |
| Bowker's 1-10 Ammoniated Acid Phosphate | 6271 | 0.8 | --- | 10.0 | --- | --- |
| Bowker's No. 1 Raw Bone | 6723 | 3.2 | --- | --- | --- | 20.0 |
| Bowker's Acid Phosphate with Potash 1916 | 6729 | --- | 1.0 | 12.0 | --- | --- |
| Bowker's Crop and Cereal Grower | 6762 | 1.6 | 1.0 | 8.0 | --- | --- |
| Bowker's Harvest Queen | 6763 | 0.8 | 2.0 | 8.0 | --- | --- |
| Bowker's Ground Bone | 6765 | 1.6 | --- | --- | --- | 27.0 |
| Bowker's Wheat & Clover Grower 1916 | 6856 | 0.8 | 1.0 | 12.0 | --- | --- |
| Bowker's Little Wonder | 7103 | 0.4 | --- | 10.0 | --- | --- |
| Bowker's Bone & Phosphate Mixture | 7114 | 0.8 | --- | 20.0 | --- | --- |
| American Agricultural Chemical Company, The, Detroit Sales Department, Detroit, Mich. | | | | | | |
| North Western Horse Shoe Brand Square Deal Phosphate | 4430 | --- | --- | 14.0 | 2.0 | --- |
| Packers Boars Head Brand Faultless Grain Grower | 4437 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Packers Boars Head Brand Gilt Edge Phosphate | 4442 | --- | --- | 14.0 | 2.0 | --- |
| North Western Horse Shoe Brand Raw Bone | 4533 | 3.2 | --- | --- | --- | 22.0 |
| North Western Horse Shoe Brand 16% Phosphate | 5931 | --- | --- | 16.0 | 1.0 | --- |
| Packers Boars Head Brand Ammoniated Bone Phosphate and Potash | 5933 | 0.8 | 1.0 | 10.0 | 2.0 | --- |
| North Western Horse Shoe Brand Acidulated Bone Phosphate and Potash | 5934 | 0.8 | 1.0 | 10.0 | 2.0 | --- |
| North Western Horse Shoe Brand Animal Bone Phosphate Manure | 5935 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Amo-Phos Fertilizer | 6213 | 1.6 | --- | 12.0 | 2.0 | --- |
| Amo-Phos & Potash Fertilizer | 6214 | 0.8 | 1.0 | 10.0 | 2.0 | --- |
| North Western Horse Shoe Dissolved Ammoniated Bone Phosphate | 6216 | 1.6 | --- | 12.0 | 2.0 | --- |
| North Western Horse Shoe Brand Potash Manure 1916 | 6325 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| North Western Horse Shoe Brand Corn and Wheat Grower 1916 | 6326 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| North Western Horse Shoe Brand F and F Fertilizer | 6330 | 0.8 | --- | 10.0 | 1.0 | --- |
| Packers Boars Head Brand 16% Phosphate | 6332 | --- | --- | 16.0 | 1.0 | --- |
| Packers Boars Head Brand Sure Growth Potash Manure 1916 | 6333 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Packers Boars Head Brand Corn and Wheat Grower 1916 | 6335 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Packers Boars Head Brand New Compound | 6337 | 0.8 | --- | 10.0 | 1.0 | --- |
| Cleveland Dryer Potato and General Crop Fertilizer 1916 | 6346 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Cleveland Dryer Ohio Seed Maker with Potash 1916 | 6347 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Zell's Economizer 1916 | 6349 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Zell's Ammoniated Bone Superphosphate 1916 | 6350 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Bradley's 16% Acid Phosphate | 6352 | --- | --- | 16.0 | 1.0 | --- |
| Bradley's Dissolved Bone Phosphate with Potash 1916 | 6354 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Bradley's Potato and Root Fertilizer 1916 | 6355 | 0.8 | 1.0 | 8.0 | 1.0 | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| American Agricultural Chemical Company, The, Detroit Sales Department, Detroit, Mich. | | | | | | |
| Reese Challenge Phosphate 1916 | 6359 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Reese Complete Fertilizer | 6360 | 0.8 | 1.0 | 10.0 | 1.0 | --- |
| Reese Corn and Wheat Grower | 6361 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| New York State Special 1916 | 6363 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| 1 and 10 Compound | 6364 | 0.8 | --- | 10.0 | 1.0 | --- |
| Cleveland Dryer Works Phospho Potash Fertilizer | 6697 | 0.8 | 1.0 | 10.0 | 1.0 | --- |
| Reese Crown Phosphate and Potash 1916 | 6724 | --- | 1.0 | 12.0 | 1.0 | --- |
| Crown Phosphate and Potash | 6735 | --- | 1.0 | 12.0 | 1.0 | --- |
| North Western Horse Shoe Brand XXX Fertilizer | 6766 | --- | 1.0 | 12.0 | 1.0 | --- |
| North Western Horse Shoe Brand 2 Potash Fertilizer | 6767 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Packers Boars Head Brand Phosphotash Fertilizer | 6769 | --- | 1.0 | 12.0 | 1.0 | --- |
| Packers Boars Head Brand New Compound and Potash Fertilizer | 6770 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Packers Boars Head Brand Success Fertilizer | 6772 | 1.6 | --- | 12.0 | 1.0 | --- |
| Favorite Potash Fertilizer | 6773 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Fine Ground Bone | 6796 | 1.6 | --- | --- | --- | 27.0 |
| Packers Boar's Head Brand Ground Bone | 6797 | 1.6 | --- | --- | --- | 27.0 |
| North Western Horse Shoe Brand Ground Bone | 6798 | 1.6 | --- | --- | --- | 27.0 |
| North Western Horse Shoe Brand Corn and Wheat Grower 1918 | 7013 | 1.6 | --- | 8.0 | 1.0 | --- |
| North Western Horse Shoe Brand Garden City Superphosphate with Potash | 7014 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Packers Boars Head Brand World of Good Superphosphate with Potash | 7015 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Packers Boars Head Brand Corn and Wheat Grower 1918 | 7016 | 1.6 | --- | 8.0 | 1.0 | --- |
| Cleveland Dryer Works Ohio Seed Maker 1918 | 7019 | 1.6 | --- | 8.0 | 1.0 | --- |
| Bradleys B D Sea Fowl Guano with Potash | 7020 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Bradleys B D Sea Fowl Guano 1918 | 7021 | 1.6 | --- | 8.0 | 1.0 | --- |
| Zells Ammoniated Bone Superphosphate 1918 | 7022 | 1.6 | --- | 8.0 | 1.0 | --- |
| American Agricultural Chemical Company, The, Empire Carbon Works, Cincinnati, Ohio | | | | | | |
| Empire 16% Acid Phosphate | 7128 | --- | --- | 16.0 | --- | --- |
| American Agricultural Chemical Company, The, Great Eastern Fertilizer Branch, Rutland, Vt. | | | | | | |
| Great Eastern Dissolved Acid Phosphate | 4671 | --- | --- | 14.0 | 1.5 | --- |
| Great Eastern Special Crop Fertilizer 1916 | 6536 | 0.8 | 1.0 | 10.0 | 1.0 | --- |
| Great Eastern General 1916 | 6537 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Great Eastern Wheat Special 1916 | 6538 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Great Eastern Vegetable, Vine & Tobacco Fertilizer 1916 | 6539 | 2.0 | 1.0 | 8.0 | 1.0 | --- |
| American Agricultural Chemical Company, The, Michigan Carbon Works, Detroit, Mich. | | | | | | |
| Red Line Complete Manure | 4411 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Red Line Phosphate | 4413 | --- | --- | 14.0 | 2.0 | --- |
| Michigan Carbon Works Superior Acid Phosphate | 5939 | --- | --- | 16.0 | 1.0 | --- |
| Michigan Carbon Works Triaton Fertilizer | 6218 | 1.6 | --- | 12.0 | 2.0 | --- |
| A-1 Potash Fertilizer 1916 | 6340 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Homestead Bialode Fertilizer | 6341 | 0.8 | 1.0 | 10.0 | 1.0 | --- |
| Red Line Crop Grower 1916 | 6342 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| New Standard Fertilizer | 6344 | 0.8 | --- | 10.0 | 1.0 | --- |
| Usemore Fertilizer | 6775 | --- | 1.0 | 12.0 | 1.0 | --- |
| Homestead Special Potash Fertilizer | 6776 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Homestead Ground Bone | 6795 | 1.6 | --- | --- | --- | 27.0 |
| Homestead Bone Black Fertilizer with Potash | 7017 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Homestead Bone Black Fertilizer 1918 | 7018 | 1.6 | --- | 8.0 | 1.0 | --- |
| American Agricultural Chemical Company, The, M. E. Wheeler & Co., Branch, Rutland, Vt. | | | | | | |
| Wheeler's Peerless Acid Phosphate | 4668 | --- | --- | 14.0 | 1.5 | --- |
| Wheeler's High Grade Acid Phosphate | 6127 | --- | --- | 16.0 | --- | --- |
| Wheeler's Royal Wheat Grower 1916 | 6540 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Wheeler's Corn Fertilizer 1916 | 6541 | 1.6 | 1.0 | 10.0 | 1.0 | --- |
| Wheeler's Potato Manure 1916 | 6542 | 2.0 | 1.0 | 8.0 | 1.0 | --- |
| A. A. C. Co. Ammoniated Fertilizer A | 6616 | 0.8 | --- | 10.0 | 1.0 | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₆ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| American Agricultural Chemical Company, The, M. E. Wheeler & Co., Branch, Rutland, Vt. | | | | | | |
| A. A. C. Co. Ammoniated Fertilizer AA | 6617 | 1.6 | --- | 10.0 | 1.0 | --- |
| A. A. C. Co. Ammoniated Fertilizer AAA | 6619 | 2.4 | --- | 10.0 | 1.0 | --- |
| American Agricultural Chemical Company, The, Western Union Chemical Co., Branch, Cleveland, Ohio | | | | | | |
| 1916—Herrick's Fertilizer with Potash | 6652 | 1.6 | 1.0 | 10.0 | 0.5 | --- |
| 1916—Corn & Wheat Grower | 6653 | 0.8 | 1.0 | 8.0 | 0.5 | --- |
| W. U. Complete Fertilizer | 6654 | 1.6 | 1.0 | 8.0 | 0.5 | --- |
| Ammoniated Phosphate | 6655 | 1.6 | --- | 12.0 | 0.5 | --- |
| One and Ten Phosphate | 6656 | 0.8 | --- | 10.0 | 0.5 | --- |
| 16% Acid Phosphate | 6657 | --- | --- | 16.0 | 0.5 | --- |
| Tiger Bone Meal | 6658 | 2.4 | --- | --- | --- | 30.0 |
| W. U. Ohio Special | 6917 | --- | 1.0 | 12.0 | 0.5 | --- |
| American Basic Phosphate Company, The, Leatherwood, Tenn. | | | | | | |
| Slater's Slag | 7010 | --- | --- | --- | --- | 18.0 |
| Armour Fertilizer Works, The, Chicago, Ill. | | | | | | |
| Star Phosphate | 2908 | --- | --- | 14.0 | 2.0 | --- |
| Grain Grower | 2910 | 1.6 | 2.0 | 8.0 | 2.0 | --- |
| Wheat Corn and Oat Special | 2938 | 0.8 | 1.0 | 7.0 | 2.0 | --- |
| Armour's Steamed Bone | 3331 | 1.6 | --- | --- | --- | 20.0 |
| Cereal Phosphate | 3360 | --- | --- | 10.0 | 2.0 | --- |
| Nitrate of Soda | 3478 | 15.6 | --- | --- | --- | --- |
| Armours Standard | 3510 | 0.8 | 3.0 | 8.0 | 2.0 | --- |
| Dried Blood | 3791 | 13.2 | --- | --- | --- | --- |
| U. S. Phosphate | 4057 | --- | --- | 12.0 | --- | --- |
| Armour's Bone Meal | 4860 | 1.6 | --- | --- | --- | 27.0 |
| 16% Acid Phosphate | 5295 | --- | --- | 16.0 | 0.5 | --- |
| Armour's 1-9-1 Fertilizer | 6035 | 0.8 | 1.0 | 9.0 | 0.5 | --- |
| Armour's 1-12-1 Fertilizer | 6037 | 0.8 | 1.0 | 12.0 | 0.5 | --- |
| Armour's 1-14-2 Fertilizer | 6038 | 0.8 | 2.0 | 14.0 | 0.5 | --- |
| Armour's 12-2 Fertilizer | 6040 | --- | 2.0 | 12.0 | 0.5 | --- |
| Armour's 18% Phosphate | 6041 | --- | --- | 18.0 | 0.5 | --- |
| Armour's Special Grain Grower | 6477 | 1.6 | 1.0 | 8.0 | 0.5 | --- |
| Armour's 1-10-1 Fertilizer | 6478 | 0.8 | 1.0 | 10.0 | 0.5 | --- |
| Armour's Special Wheat, Corn & Oats | 6479 | 0.8 | 1.0 | 8.0 | 0.5 | --- |
| Armour's Ammoniated Phosphate No. 3 | 6480 | 2.4 | --- | 10.0 | 0.5 | --- |
| Armour's Ammoniated Phosphate No. 2 | 6481 | 1.6 | --- | 10.0 | 0.5 | --- |
| Armour's High Grade Ammoniated Phosphate | 6592 | 1.6 | --- | 12.0 | 0.5 | --- |
| Armour's 3-8-1 Fertilizer | 6593 | 2.4 | 1.0 | 8.0 | 0.5 | --- |
| Armour's Potash & Phosphate Special | 6712 | --- | 1.0 | 10.0 | 0.5 | --- |
| Special Ammoniated Phosphate No. 1 | 6732 | 0.8 | --- | 12.0 | 0.5 | --- |
| Armour's 1-14-1 Fertilizer | 6750 | 0.8 | 1.0 | 14.0 | 0.5 | --- |
| Armour's 1-14 Fertilizer | 6831 | 0.8 | --- | 14.0 | 0.5 | --- |
| Armour's 2-10-1 Fertilizer | 6832 | 1.6 | 1.0 | 10.0 | 0.5 | --- |
| Armour's 1-8-5 Fertilizer | 6912 | 0.8 | 5.0 | 8.0 | 0.5 | --- |
| Armour's 1-8-6 Fertilizer | 6921 | 0.8 | 6.0 | 8.0 | 0.5 | --- |
| A. B. Norris' Indiana Wheat Special | 6985 | 0.4 | --- | 12.0 | 0.5 | --- |
| Indiana Special | 7110 | 0.4 | --- | 10.0 | 0.5 | --- |
| Sheep Manure | 7124 | 1.6 | 1.2 | --- | --- | 2.0 |
| A. B. Norris' Indiana Corn Special No. 2 | 7129 | 0.8 | --- | 10.0 | 0.5 | --- |
| A. B. Norris' Special Corn Fertilizer | 7133 | 1.2 | --- | 10.0 | 0.5 | --- |
| Ballard Packing Company, Marion, Ind. | | | | | | |
| Ballard's Animal Tankage Fertilizer | 5600 | 5.0 | --- | --- | --- | 14.0 |
| Bausback & Sons, Robert, Shelbyville, Ind. | | | | | | |
| Soft Bone | 3007 | 3.5 | --- | --- | --- | 14.0 |
| Buhner Fertilizer Company, Seymour, Ind. | | | | | | |
| Raw Ground Bone | 4171 | 3.2 | --- | --- | --- | 20.0 |
| Rock Phosphate | 5565 | --- | --- | --- | --- | 28.0 |
| Half Bone & Phosphate | 5734 | 1.6 | --- | 10.0 | 6.0 | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Buhner Fertilizer Company, Seymour, Ind. | | | | | | |
| Grain Booster | 5747 | 0.8 | --- | 10.0 | 1.0 | --- |
| Acid Phosphate | 6075 | --- | --- | 14.0 | --- | --- |
| W. T. Crop Grower | 6525 | 2.0 | 0.2 | 8.0 | 2.0 | --- |
| W. T. Truck Grower | 6526 | 2.4 | 0.5 | 8.0 | 2.0 | --- |
| W. T. Grain Producer | 6527 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| W. T. Grain Grower | 6528 | 1.6 | 0.2 | 8.0 | 2.0 | --- |
| 16% Acid Phosphate | 6696 | --- | --- | 16.0 | --- | --- |
| Ground Bone | 6742 | 2.4 | --- | --- | --- | 24.0 |
| Ammoniated Bone & Phosphate | 6994 | 2.0 | --- | 6.0 | 14.0 | --- |
| Central Phosphate Company, Mt. Pleasant, Tenn. | | | | | | |
| Tennessee Phosphate Rock | 5040 | --- | --- | --- | --- | 28.0 |
| Tennessee Phosphate | 5261 | --- | --- | --- | --- | 32.0 |
| Chicago Feed & Fertilizer Company, Chicago, Ill. | | | | | | |
| Magic Blood & Bone | 6584 | 4.9 | --- | --- | --- | 13.7 |
| Magic Tankage Fertilizer | 6585 | 2.4 | 0.5 | --- | --- | 1.5 |
| Magic Pulverized Sheep Manure | 6586 | 1.6 | 1.0 | --- | --- | 1.0 |
| Magic 3-22 Steamed Bone Meal | 6587 | 2.4 | --- | --- | --- | 22.0 |
| Magic 4-6-1 | 6588 | 3.2 | 1.0 | --- | --- | 6.0 |
| Magic 4-3-1 | 6589 | 3.2 | 1.0 | --- | --- | 3.0 |
| Magic Manure Ash Potash | 6706 | --- | 4.0 | --- | --- | 2.0 |
| Magic Acid Phosphate | 6930 | --- | --- | 16.0 | 1.0 | --- |
| Magic Brand Manure Ash Potash | 7146 | --- | 5.0 | --- | --- | 2.5 |
| Chicago Raw Products Company, Chicago, Ill. | | | | | | |
| Consumers Special 14% Acid Phosphate | 5012 | --- | --- | 14.0 | 1.0 | --- |
| Consumers Special Raw Bone Meal | 5013 | 3.7 | --- | --- | --- | 20.0 |
| Consumers Special 3-22 Bone Meal | 5070 | 2.4 | --- | --- | --- | 22.8 |
| Consumers Special 1-29 Pure Bone Meal | 5072 | 0.8 | --- | --- | --- | 29.7 |
| Consumers Special Ammoniated Extra Bone Meal | 5681 | 2.0 | --- | --- | --- | 28.0 |
| Consumers Brand Steamed Bone Meal | 6387 | 0.8 | --- | --- | --- | 24.0 |
| Consumers Brand Bone & Phosphate Mixture | 6388 | 0.4 | --- | 15.0 | 8.0 | --- |
| Consumers Brand 16% Acid Phosphate | 6389 | --- | --- | 16.0 | 1.0 | --- |
| Consumers Brand 15% Acid Phosphate | 6390 | --- | --- | 15.0 | 1.0 | --- |
| Consumers Brand Ammoniated Phosphate | 6393 | 1.6 | --- | 10.0 | 1.0 | --- |
| Consumers Hummer Grain Grower | 6827 | 0.8 | 0.5 | 10.0 | 1.0 | --- |
| Consumers Ammoniated Bone Phosphate | 6828 | 0.6 | --- | 15.0 | 1.0 | --- |
| Consumers Corn & Wheat Special | 7037 | 0.8 | --- | 12.0 | 1.0 | --- |
| Consumers Onion & Truck Grower | 7038 | 0.4 | 3.0 | 8.0 | 1.0 | --- |
| Consumers Otto Voyles Special | 7039 | 0.6 | --- | 8.0 | 1.0 | --- |
| Consumers Corn & Tobacco Grower | 7040 | 0.8 | --- | 10.0 | 1.0 | --- |
| Consumers Special Crop Grower | 7041 | 0.4 | --- | 12.0 | 1.0 | --- |
| Otto Voyles Special with Potash | 7111 | 0.6 | 0.5 | 8.5 | 1.0 | --- |
| Cincinnati Phosphate Company, The, Cincinnati, Ohio | | | | | | |
| Capital City Wheat Grower | 2886 | --- | --- | 14.0 | 1.0 | --- |
| Patrons High Grade Phosphate | 3626 | --- | --- | 16.0 | 1.0 | --- |
| "Bonus" A Phosphate with Humus | 3903 | 0.4 | --- | 12.0 | 1.0 | --- |
| "A" Grain and Grass Grower | 4301 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| A. Conservation Brand | 5829 | 0.8 | 1.0 | 12.0 | 1.0 | --- |
| Grain & Grass Grower | 5830 | 0.8 | 1.0 | 9.0 | 1.0 | --- |
| Ammoniated Super Phosphate | 6292 | 1.6 | --- | 12.0 | 1.0 | --- |
| High Grade Manure | 6293 | 1.2 | 1.0 | 9.0 | 1.0 | --- |
| "A." Tobacco Potatoes & Beet Grower | 6294 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Revised Indiana Black Soil Special | 6582 | 0.4 | 3.0 | 6.0 | 1.0 | --- |
| Revised Black Soil Special | 6583 | 0.4 | 2.0 | 6.0 | 1.0 | --- |
| Favorite Grain Grower | 6622 | 0.8 | --- | 10.0 | 1.0 | --- |
| A Ground Bone | 6754 | 1.6 | --- | --- | --- | 27.0 |
| C-Bone & Phosphate Mixture Wheat Special | 6755 | 1.6 | --- | 8.0 | 8.0 | --- |
| Capitol Crop Booster | 6758 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| Capitol Tobacco Potato & Beet Grower | 7046 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Clendenin Fertilizer Company, Richmond, Ind. | | | | | | |
| Acid Phosphate Special | 4839 | --- | --- | 14.0 | --- | --- |
| Wheat Grower | 6117 | 0.8 | 1.0 | 10.0 | --- | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Clendenin Fertilizer Company, Richmond, Ind. | | | | | | |
| Corn Grower | 6607 | 1.6 | --- | 10.0 | --- | --- |
| Tankage and Phosphate | 6608 | 0.8 | --- | 11.0 | --- | --- |
| Acid Phosphate | 6609 | --- | --- | 16.0 | --- | --- |
| Phosphate and Bone | 6610 | 1.8 | --- | 12.0 | 7.0 | --- |
| Cleveland Provision Company, The, Cleveland, Ohio | | | | | | |
| Premium Bone Meal | 6898 | 0.6 | --- | --- | --- | 25.0 |
| Darling & Company, Chicago, Ill. | | | | | | |
| Darling's Ground Raw Bone | 2843 | 3.3 | --- | --- | --- | 21.0 |
| Darling's Nitrate of Soda | 4184 | 14.8 | --- | --- | --- | --- |
| Darling's "A" Pure Ground Bone | 5120 | 1.8 | --- | --- | --- | 28.0 |
| Darling's Sheep Manure | 6258 | 2.0 | 1.0 | --- | --- | 1.0 |
| Darling's 16% Acid Phosphate | 6372 | --- | --- | 16.0 | --- | --- |
| Darling's Grain Grower | 6373 | 0.8 | 1.0 | 9.0 | 2.0 | --- |
| Darling's Big Harvest | 6374 | 1.6 | 1.0 | 12.0 | 2.0 | --- |
| Darling's Farmers' Favorite | 6375 | 2.4 | 1.0 | 8.0 | 2.0 | --- |
| Darling's Sure Winner | 6377 | 0.8 | 0.5 | 10.0 | 2.0 | --- |
| Darling's Blood & Bone | 6620 | 4.9 | --- | --- | --- | 12.0 |
| Darling's General Crop | 6778 | 1.6 | --- | 12.0 | 2.0 | --- |
| Darling's Little Giant Brand | 6812 | 0.8 | --- | 10.0 | 2.0 | --- |
| Darling's One-Eight-Two Brand | 6813 | 0.8 | 2.0 | 8.0 | 2.0 | --- |
| Darling's Half and Half | 6901 | 0.8 | --- | 10.0 | 13.0 | --- |
| D. & K. Fertilizer Company, Indianapolis, Ind. | | | | | | |
| D and K. Bone Phosphate | 3030 | --- | 1.1 | 10.0 | 1.0 | --- |
| Pure Ground Bone | 3363 | 1.6 | --- | --- | --- | 20.0 |
| Quick Acting Corn Grower | 3402 | 0.8 | 1.5 | 9.0 | 0.5 | --- |
| D. & K. Nitrate of Soda | 4979 | 14.0 | --- | --- | --- | --- |
| D and K 14% Acid Phosphate | 5483 | --- | --- | 14.0 | --- | --- |
| D & K Garden Special | 5757 | 1.6 | 1.0 | 10.0 | --- | --- |
| D & K Early Maturity | 5759 | 1.6 | 2.0 | 8.0 | --- | --- |
| Ammoniated Mixture | 5769 | 1.6 | --- | 12.0 | --- | --- |
| Dissolved Bone Phosphate with Potash | 6062 | 0.8 | 1.1 | 7.0 | 1.0 | --- |
| D & K Special Wheat & Clover | 6200 | 0.8 | 1.0 | 9.0 | --- | --- |
| Available Plant Food | 6226 | 1.2 | --- | 10.0 | --- | --- |
| D & K Corn King | 6260 | 0.8 | 0.5 | 12.0 | --- | --- |
| D & K Special Spring Fertilizer | 6261 | 0.4 | 0.5 | 13.0 | --- | --- |
| D & K ½-8-3 | 6615 | 0.4 | 3.0 | 8.0 | --- | --- |
| D & K Special Wheat Fertilizer | 6689 | 0.8 | 0.5 | 12.0 | --- | --- |
| D & K Special Fall Fertilizer | 6690 | 0.4 | 0.5 | 13.0 | --- | --- |
| Special Wheat Grower | 6969 | 0.8 | --- | 10.0 | 1.0 | --- |
| Tankage and Phosphate Special | 6986 | 0.4 | --- | 12.0 | 0.5 | --- |
| Ammoniated Phosphate | 7135 | 0.4 | --- | 10.0 | --- | --- |
| Wheat & Clover | 7144 | 0.5 | 0.5 | 11.0 | --- | --- |
| Dryfus Packing & Provision Company, LaFayette, Ind. | | | | | | |
| Dryfus Star Fertilizer | 5460 | 5.0 | --- | --- | --- | 10.0 |
| Eckart Packing Company, Fred, Ft. Wayne, Ind. | | | | | | |
| Eckart's Fertilizer | 4572 | 3.6 | --- | --- | --- | 12.8 |
| Empire Carbon Works, Subsidiary of The American Agricultural Chemical Company, Cincinnati, Ohio | | | | | | |
| Empire 14% Acid Phosphate | 6814 | --- | --- | 14.0 | --- | --- |
| Empire 16% Acid Phosphate | 6815 | --- | --- | 16.0 | --- | --- |
| Empire 1-10 Ammoniated Acid Phosphate | 6816 | 0.8 | --- | 10.0 | --- | --- |
| Empire 2-10 Ammoniated Acid Phosphate | 6817 | 1.6 | --- | 10.0 | --- | --- |
| Empire 2-12 Ammoniated Acid Phosphate | 6818 | 1.6 | --- | 12.0 | --- | --- |
| Empire Acid Phosphate with Potash 1916 | 6819 | --- | 1.0 | 12.0 | --- | --- |
| Empire Full Harvest | 6820 | 0.8 | 1.0 | 8.0 | --- | --- |
| Empire Wheat & Clover Fertilizer | 6821 | 0.8 | 2.0 | 8.0 | --- | --- |
| Empire Grain & Grass Grower | 6822 | 1.6 | 2.0 | 8.0 | --- | --- |
| Empire Bone Black Fertilizer 1916 | 6823 | 2.0 | 1.0 | 8.0 | --- | --- |
| Empire Farmers Favorite | 6824 | 0.8 | 1.0 | 10.0 | --- | --- |
| Empire High Grade Fertilizer 1916 | 6825 | 2.4 | 1.0 | 10.0 | --- | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Empire Carbon Works, Subsidiary of The American Agricultural Chemical Company, Cincinnati, Ohio | | | | | | |
| Empire Ground Bone ----- | 6826 | 1.6 | --- | --- | --- | 27.0 |
| Empire Little Wonder ----- | 7102 | 0.4 | --- | 10.0 | --- | --- |
| Empire Guano Company, The, New Albany Sales Department, New Albany, Ind. | | | | | | |
| Empire High Grade Acid Phosphate ----- | 3307 | --- | --- | 14.0 | 2.0 | --- |
| Empire Climax Acid Phosphate ----- | 3514 | --- | --- | 16.0 | 1.0 | --- |
| Empire Pure Raw Bone ----- | 4593 | 3.5 | --- | --- | --- | 21.5 |
| Raw Rock Phosphate ----- | 5125 | --- | --- | --- | --- | 30.0 |
| Nitrate of Soda ----- | 5127 | 15.0 | --- | --- | --- | --- |
| Good Enough No. 1 ----- | 5774 | 0.8 | 1.0 | 12.0 | 1.0 | --- |
| Red Banner Special No. 1 ----- | 5787 | 0.8 | 2.0 | 10.0 | 1.0 | --- |
| Indiana Special No. 2 ----- | 6209 | 0.3 | 1.0 | 15.0 | 1.0 | --- |
| Empire Pure Steamed Bone ----- | 6231 | 0.8 | --- | --- | --- | 29.0 |
| Hoosier Special ----- | 6318 | 0.4 | 0.5 | 8.0 | 1.0 | --- |
| Half & Half No. 1 ----- | 6319 | 1.6 | 1.0 | 6.0 | 6.0 | --- |
| Tankage & Phosphate Special ----- | 6320 | 0.8 | --- | 12.0 | 1.0 | --- |
| Favorite ----- | 6321 | 1.6 | --- | 12.0 | 1.0 | --- |
| Red Banner Special No. 2 ----- | 6322 | 0.8 | 1.0 | 9.0 | 1.0 | --- |
| Ammoniated Potash & Phosphate No. 1 ----- | 6323 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| Truck Grower No. 1 ----- | 6483 | 0.6 | 2.5 | 7.0 | 1.0 | --- |
| Blood Bone & Phosphate No. 1 ----- | 6708 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Half-Seven-Three ----- | 6722 | 0.4 | 3.0 | 7.0 | --- | --- |
| Empire Half-Ten-Five ----- | 6910 | 0.4 | 5.0 | 10.0 | 1.0 | --- |
| Empire Five-Five ----- | 6911 | --- | 5.0 | 5.0 | 1.0 | --- |
| Indiana Special No. 2 Fertilizer ----- | 6967 | 0.3 | 1.0 | 14.0 | 1.0 | --- |
| Wedeking's Hummer Grain Grower ----- | 6982 | 0.4 | --- | 12.0 | 1.0 | --- |
| Wedeking's General Crop ----- | 6983 | 0.8 | --- | 12.0 | 1.0 | --- |
| Empire 2 & 26 Steamed Bone ----- | 6988 | 1.6 | --- | --- | --- | 26.0 |
| Hoosier Brand ----- | 7101 | 0.4 | --- | 10.0 | 1.0 | --- |
| Tomato & Tobacco Grower ----- | 7138 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| Evansville Packing Company, Evansville, Ind. | | | | | | |
| Harvest King ----- | 4886 | 1.0 | 2.0 | 8.0 | 1.0 | --- |
| Pure Raw Bone Meal ----- | 4891 | 3.7 | --- | --- | --- | 23.0 |
| Corn & Wheat Special ----- | 5359 | 0.8 | 3.0 | 12.0 | 2.0 | --- |
| High Grade Soluble Phosphate ----- | 5360 | --- | --- | 16.0 | 2.0 | --- |
| Bone Phosphate & Potash ----- | 6057 | 0.8 | 1.0 | 7.0 | 2.0 | --- |
| Three B. ----- | 6058 | 1.6 | 2.0 | 8.0 | 2.0 | --- |
| "Farmers Pride" ----- | 6247 | 0.8 | 1.0 | 12.0 | 2.0 | --- |
| Revised Half and Half ----- | 6545 | 2.5 | 1.0 | 10.0 | 2.0 | --- |
| Wonder Growth ----- | 6546 | 1.6 | --- | 10.0 | 2.0 | --- |
| "Leader" ----- | 6734 | 2.4 | 1.0 | 9.0 | 2.0 | --- |
| Everitt's Seed Store, Indianapolis, Ind. | | | | | | |
| Magic Corn, Oats and Wheat Grower (Ev-er-It Brand) ----- | 7139 | --- | --- | 14.0 | --- | --- |
| Magic Garden and Truck Grower (Ev-er-It Brand) ----- | 7140 | 2.0 | 1.0 | 8.0 | --- | --- |
| Ev-er-It Brand Humus ----- | 7141 | 1.2 | 0.5 | --- | --- | 0.5 |
| Ev-er-It Brand Sheep Manure ----- | 7142 | 2.0 | 1.2 | --- | --- | 1.5 |
| Ewing, Geo. M., Greensburg, Ind. | | | | | | |
| Ewing's Phosphate & Potash ----- | 3324 | --- | 2.0 | 10.0 | --- | --- |
| Ewing's Best Phosphate & Potash ----- | 3325 | --- | 2.0 | 12.0 | --- | --- |
| Ewing's Acid Phosphate ----- | 3326 | --- | --- | 10.0 | --- | --- |
| Ewing's Complete Fertilizer ----- | 3619 | 0.8 | 1.0 | 7.0 | --- | --- |
| Ewing's 14% Acid Phosphate ----- | 3733 | --- | --- | 14.0 | --- | --- |
| Ewing's Grain King ----- | 4706 | 1.6 | 2.0 | 8.0 | 0.5 | --- |
| Farmers Fertilizer Company, The, Indianapolis, Ind. | | | | | | |
| Farmers Wheat & Oats Special ----- | 3199 | --- | --- | 14.0 | --- | --- |
| Our Universal Phosphate ----- | 3555 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Corn & Wheat Grower ----- | 3556 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Our German Phosphate ----- | 3557 | 0.8 | 3.0 | 8.0 | 1.0 | --- |
| Our Half & Half ----- | 4817 | 1.2 | --- | 8.0 | 11.0 | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Farmers Fertilizer Company, The, Indianapolis, Ind. | | | | | | |
| Grain Manure | 5808 | 0.8 | 1.0 | 9.0 | --- | --- |
| 16% Acid Phosphate | 6188 | --- | --- | 16.0 | --- | --- |
| Superphosphated Manure | 6237 | 1.0 | --- | 10.0 | 1.0 | --- |
| Plant Food | 6272 | 0.8 | 1.0 | 12.0 | --- | --- |
| Black Soil Formula | 6273 | 0.4 | 3.0 | 5.0 | --- | --- |
| Soil Food | 6274 | 0.8 | 0.5 | 8.0 | --- | --- |
| Corn & Wheat Grower without Potash | 6276 | 0.8 | --- | 8.0 | --- | --- |
| Nitro Phosphate | 7023 | 0.4 | --- | 10.0 | --- | --- |
| Federal Chemical Company, Inc., Louisville, Ky. | | | | | | |
| Daybreak Standard Phosphate | 3923 | --- | --- | 12.0 | --- | --- |
| Daybreak Star Phosphate | 3924 | --- | --- | 10.0 | --- | --- |
| Daybreak Royal Phosphate | 3925 | --- | --- | 14.0 | --- | --- |
| Daybreak Fine Raw Bone | 4088 | 2.4 | --- | --- | --- | 24.0 |
| "A" Daybreak Wheat & Corn Special | 4143 | 0.4 | 1.0 | 11.0 | --- | --- |
| Daybreak Special Manure | 4271 | 0.8 | 2.0 | 10.0 | --- | --- |
| Ground Tobacco Stems | 4754 | 2.0 | 9.0 | --- | --- | --- |
| Nitrate of Soda | 4997 | 15.0 | --- | --- | --- | --- |
| A. 1 Daybreak Raw Bone | 5002 | 3.7 | --- | --- | --- | 22.0 |
| Daybreak High Grade Acid Phosphate | 5016 | --- | --- | 16.0 | --- | --- |
| Daybreak Ground Phosphate Rock | 5252 | --- | --- | --- | --- | 29.7 |
| Half & Half Phosphate Mixture | 5435 | --- | --- | 10.0 | 12.0 | --- |
| Pure Bone | 5657 | 1.0 | --- | --- | --- | 30.0 |
| Extra High Grade Phosphate | 5742 | --- | --- | 18.0 | --- | --- |
| Daybreak Royal Wheat & Grain Special | 5766 | 0.8 | 1.0 | 12.0 | --- | --- |
| Sand Land Special | 5857 | 1.2 | 0.5 | 12.5 | --- | --- |
| Daybreak Nitro-Phosphate | 5858 | 0.4 | --- | 15.0 | --- | --- |
| Daybreak Cracker-Jack | 5866 | 0.4 | 1.0 | 13.0 | --- | --- |
| Daybreak Harvest Home | 5868 | 2.4 | --- | 10.0 | --- | --- |
| Daybreak Half & Half Meal Mixture | 5869 | 1.6 | --- | 10.0 | 10.0 | --- |
| Standard Crop & Tobacco Fertilizer | 6416 | 1.2 | --- | 10.0 | --- | --- |
| A-1 Formula 1916 | 6417 | 1.6 | --- | 10.0 | --- | --- |
| High Grade Fertilizer | 6418 | 1.6 | --- | 12.0 | --- | --- |
| Special Potato Fertilizer | 6419 | 2.4 | 1.0 | 9.0 | --- | --- |
| Potato Grower | 6420 | 3.2 | 1.0 | 8.0 | --- | --- |
| Red Rooster Mixture | 6421 | 0.4 | --- | 12.0 | --- | --- |
| A-1 Fertilizer 1916 | 6422 | 0.8 | --- | 12.0 | --- | --- |
| A-1 Corn & Wheat Fertilizer | 6423 | 0.8 | --- | 14.0 | --- | --- |
| Potato & Tobacco Fertilizer | 6424 | 2.0 | 1.0 | 10.0 | --- | --- |
| Tobacco, Truck & Tomato Fertilizer 1916 | 6425 | 1.6 | 1.0 | 9.0 | --- | --- |
| Special Truck & Tomato Fertilizer | 6426 | 1.6 | 0.5 | 11.5 | --- | --- |
| High Grade Special | 6427 | 0.8 | 1.0 | 14.0 | --- | --- |
| A-1 Special | 6428 | 0.4 | 0.5 | 15.0 | --- | --- |
| Standard Grain Grower | 6429 | 0.8 | 1.0 | 10.0 | --- | --- |
| Standard Corn & Wheat Fertilizer | 6430 | 1.2 | 0.5 | 10.0 | --- | --- |
| Daybreak Special Manure 1916 | 6431 | 1.0 | 0.5 | 10.0 | --- | --- |
| Daybreak Grain Grower 1916 | 6432 | 0.4 | 0.5 | 9.0 | --- | --- |
| Daybreak A-1 Champion | 6433 | 0.4 | 0.5 | 11.5 | --- | --- |
| Daybreak Corn, Wheat & Clover Grower | 6434 | 0.8 | 1.0 | 9.0 | --- | --- |
| 1st Prize Phosphate | 6435 | --- | --- | 14.0 | --- | --- |
| A—1st Prize Tobacco Mixture | 6436 | 0.4 | 0.5 | 9.0 | --- | --- |
| 1st Prize Ammoniated Meal Mixture | 6437 | 2.4 | --- | 10.0 | --- | --- |
| 1st Prize Corn & Wheat Champion | 6438 | 0.4 | 0.5 | 11.5 | --- | --- |
| 1st Prize Corn, Wheat & Oats Grower | 6439 | 0.4 | 1.0 | 11.0 | --- | --- |
| 1st Prize Grain Maker | 6440 | 0.4 | 1.0 | 13.0 | --- | --- |
| 1st Prize Wheat & Grain Special | 6441 | 0.8 | 1.0 | 12.0 | --- | --- |
| 1st Prize Corn & Wheat Fertilizer | 6442 | 1.0 | 0.5 | 10.0 | --- | --- |
| 1st Prize Clay Land Soil Builder | 6443 | 1.2 | 0.5 | 12.5 | --- | --- |
| 1st Prize Phosphate Mixture | 6444 | 0.4 | --- | 12.0 | --- | --- |
| 1st Prize Ammoniated Bone Phosphate | 6445 | 0.4 | --- | 15.0 | --- | --- |
| 1st Prize Standard Phosphate | 6446 | --- | --- | 12.0 | --- | --- |
| 1st Prize A. A. Phosphate | 6447 | --- | --- | 10.0 | --- | --- |
| 1st Prize Fine Raw Bone | 6448 | 2.4 | --- | --- | --- | 24.0 |
| 1st Prize Raw Bone | 6449 | 3.7 | --- | --- | --- | 22.0 |
| Blue Ribbon Meal Mixture | 6450 | 1.6 | --- | 10.0 | 10.0 | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|--|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Federal Chemical Company, Inc., Louisville, Ky. | | | | | | |
| Blue Ribbon Corn & Wheat Fertilizer | 6451 | 1.2 | 0.5 | 12.5 | --- | --- |
| Corn Club Corn & Wheat Fertilizer | 6452 | 1.2 | 0.5 | 10.0 | --- | --- |
| Mogul Phosphate | 6453 | --- | --- | 16.0 | --- | --- |
| Standard Meal Mixture | 6564 | 0.8 | --- | 10.0 | 10.0 | --- |
| Mogul Complete Manure | 6591 | 1.2 | 0.5 | 8.0 | --- | --- |
| High Grade Phosphate & Tobacco Fertilizer | 6623 | 0.1 | 0.3 | 16.0 | --- | --- |
| Mogul Ammoniated Phosphate | 6632 | 0.4 | --- | 12.0 | 10.0 | --- |
| High Grade Half & Half Ammoniated Phosphate | 6633 | 0.4 | --- | 12.0 | 10.0 | --- |
| 1st Prize High Grade Phosphate | 6651 | --- | --- | 16.0 | --- | --- |
| Carbonate Potash & Phosphate Special | 6744 | 0.2 | 2.0 | 10.0 | --- | --- |
| Carbonate Potash & Phosphate Mixture | 6745 | 0.8 | 3.0 | 8.0 | --- | --- |
| Daybreak King Crop Grower | 6800 | 0.8 | --- | 8.0 | 12.0 | --- |
| Daybreak Champion Grain Grower | 6801 | 0.4 | 0.5 | 9.0 | 9.0 | --- |
| 1st Prize Fertilizer King | 6802 | 0.8 | --- | 8.0 | 12.0 | --- |
| Mogul Grain Grower | 6803 | 0.4 | 0.5 | 9.0 | 9.0 | --- |
| Black Land Special | 6857 | 0.4 | 1.0 | 10.0 | 10.0 | --- |
| Vegetable Grower | 6920 | 2.0 | --- | 12.5 | --- | --- |
| Golden Harvest | 6927 | 2.4 | --- | 10.0 | 5.0 | --- |
| Standard Wheat & Corn Maker | 6954 | 0.4 | 0.5 | 11.5 | --- | --- |
| Standard Crop Maker | 6955 | 0.4 | 0.5 | 11.5 | --- | --- |
| Daybreak Clay Land Fertilizer | 6956 | 0.4 | 0.5 | 12.5 | --- | --- |
| Daybreak Double-Duty | 6957 | 0.8 | --- | 10.0 | 10.0 | --- |
| Staff-O-Life | 6958 | 0.4 | --- | 10.0 | 10.0 | --- |
| Daybreak Crop Hustler | 6959 | 0.4 | --- | 14.0 | --- | --- |
| Daybreak Tennessee Brown Phosphate Rock | 6976 | --- | --- | --- | --- | 32.0 |
| Mogul Corn & Wheat Fertilizer | 6993 | 0.8 | --- | 12.0 | --- | --- |
| Daybreak Champion Potash Fertilizer | 7056 | --- | 2.0 | 8.0 | 8.0 | --- |
| Daybreak Double Phosphate & Potash | 7057 | --- | 1.0 | 10.0 | 10.0 | --- |
| Daybreak Favorite Tobacco Mixture | 7058 | 1.2 | 0.5 | 8.0 | 8.0 | --- |
| Daybreak Tobacco Formula | 7059 | 0.4 | 1.0 | 8.0 | 8.0 | --- |
| Daybreak Grain Maker Phosphate | 7060 | --- | --- | 10.0 | 14.0 | --- |
| Royal Tobacco Compound | 7061 | 0.4 | 1.5 | 10.0 | --- | --- |
| Royal Meal Mixture | 7062 | 0.8 | --- | 10.0 | 10.0 | --- |
| Half & Half Phosphate | 7063 | --- | --- | 10.0 | 14.0 | --- |
| High Grade Ammoniated Mixture | 7064 | 0.4 | --- | 10.0 | 12.0 | --- |
| Clay Land Corn & Wheat Grower | 7065 | 0.8 | --- | 8.0 | 12.0 | --- |
| Clay Land High Grade Tobacco Formula | 7066 | 1.2 | 0.5 | 8.0 | 8.0 | --- |
| Muck Land Potash & Phosphate Formula | 7067 | --- | 3.0 | 8.0 | 8.0 | --- |
| Twenty-Four Phosphate | 7068 | --- | --- | 10.0 | 14.0 | --- |
| Staff-O-Life Fertilizer | 7069 | 0.4 | --- | 10.0 | 12.0 | --- |
| Corn Belt Potash & Phosphate Special | 7070 | --- | 3.0 | 8.0 | 8.0 | --- |
| Double Value Truck & Tomato Grower | 7093 | 1.2 | 0.5 | 8.0 | 8.0 | --- |
| Fertile Chemical Company, The, Cleveland, Ohio | | | | | | |
| Nitro-Fertile | 7130 | 2.0 | 3.0 | 3.0 | --- | --- |
| Lime-Fertile | 7131 | --- | --- | --- | --- | 3.0 |
| Fertilizer Company of Paris, Ill., Paris, Ill. | | | | | | |
| "Paris Pure Bone Meal" | 5505 | 2.0 | --- | --- | --- | 27.0 |
| Fessenden, F. L., Cincinnati, Ohio | | | | | | |
| "A Nitrate of Soda" | 4730 | 15.6 | --- | --- | --- | --- |
| Fluhrer Tobacco & Snuff Company, Boonville, Ind. | | | | | | |
| Tobacco Flour | 6667 | 1.0 | 5.0 | --- | --- | --- |
| Fox Chemical Company, Louisville, Ky. | | | | | | |
| Fox Grain Grower | 2728 | 0.8 | 1.0 | 9.0 | --- | --- |
| Fox Acid Phosphate | 2732 | --- | --- | 14.0 | --- | --- |
| A. A. Acid Phosphate | 2733 | --- | --- | 10.0 | --- | --- |
| Fox High Grade Acid Phosphate | 3607 | --- | --- | 16.0 | --- | --- |
| Fox Standard Acid Phosphate | 3685 | --- | --- | 12.0 | --- | --- |
| Fox Wheat & Grain Special | 3689 | 0.8 | 1.0 | 12.0 | --- | --- |
| Fox Ground Raw Bone | 4089 | 2.4 | --- | --- | --- | 24.0 |
| A. 1 Fox Raw Bone | 5003 | 3.7 | --- | --- | --- | 22.0 |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|--|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Fox Chemical Company, Louisville, Ky. | | | | | | |
| Fox Soil Builder | 5872 | 0.4 | 1.0 | 13.0 | --- | --- |
| Fox Clay Land Crop Grower | 5873 | 1.2 | 0.5 | 12.5 | --- | --- |
| Fox Ammoniated Phosphate | 5877 | 0.4 | --- | 15.0 | --- | --- |
| Fox Ammoniated Fertilizer | 5880 | 2.4 | --- | 10.0 | --- | --- |
| Fox Blood, Bone Phosphate & Potash | 5881 | 0.4 | 1.0 | 11.0 | --- | --- |
| Fox Half & Half Meal Mixture | 5882 | 1.6 | --- | 10.0 | 10.0 | --- |
| Fox Formula 1916 | 6463 | 1.2 | 0.5 | 10.0 | --- | --- |
| Fox Ideal Fertilizer 1916 | 6464 | 0.4 | 0.5 | 11.5 | --- | --- |
| Fox Grain Special 1916 | 6465 | 0.4 | 0.5 | 9.0 | --- | --- |
| Early Harvest Fertilizer | 6466 | 1.0 | 0.5 | 10.0 | --- | --- |
| Fox Complete Fertilizer | 6467 | 1.2 | 0.5 | 8.0 | --- | --- |
| Red Fox Mixture | 6468 | 0.4 | --- | 12.0 | --- | --- |
| Red Fox Crop Grower | 6469 | 0.8 | --- | 16.0 | --- | --- |
| Fox Crop & Tobacco Fertilizer | 6470 | 1.2 | --- | 10.0 | --- | --- |
| Fox Vegetable Grower 1916 | 6471 | 2.0 | --- | 12.5 | --- | --- |
| Fox Decatur County Fertilizer | 6472 | 0.1 | 0.3 | 16.0 | --- | --- |
| Fox Ideal Ammoniated Phosphate | 6635 | 0.4 | --- | 12.0 | 10.0 | --- |
| Fox Wheat & Corn Manure 1916 | 6748 | 1.0 | 0.5 | 10.0 | --- | --- |
| Fox King Mixture | 6808 | 0.8 | --- | 8.0 | 12.0 | --- |
| Fox Ideal Grain Grower | 6809 | 0.4 | 0.5 | 9.0 | 9.0 | --- |
| Fox Crop Maker | 6947 | 0.4 | 0.5 | 11.5 | --- | --- |
| Early Harvest Wheat & Corn Maker | 6948 | 0.4 | 0.5 | 11.5 | --- | --- |
| A-1 Fox Formula | 6949 | 0.4 | 0.5 | 12.5 | --- | --- |
| Fox Clay Land Special | 6950 | 0.4 | 0.5 | 12.5 | --- | --- |
| Fox Double-Quick | 6951 | 0.8 | --- | 10.0 | 10.0 | --- |
| Fox World Feeder | 6952 | 0.4 | --- | 10.0 | 10.0 | --- |
| Fox Wonder-Worker | 6953 | 0.4 | --- | 14.0 | --- | --- |
| Red Fox Grain & Grass Grower | 7071 | 0.4 | 1.0 | 11.0 | --- | --- |
| Fox Ideal Potash Fertilizer | 7072 | --- | 2.0 | 8.0 | 8.0 | --- |
| Fox World Feeder Fertilizer | 7073 | 0.4 | --- | 10.0 | 12.0 | --- |
| Fox Double Phosphate & Potash | 7074 | --- | 1.0 | 10.0 | 10.0 | --- |
| Early Garden Tobacco Mixture | 7075 | 1.2 | 0.5 | 8.0 | 8.0 | --- |
| Fox Tobacco Formula | 7076 | 0.4 | 1.0 | 8.0 | 8.0 | --- |
| Fox Better Phosphate | 7077 | --- | --- | 10.0 | 14.0 | --- |
| Red Fox Tobacco Compound | 7078 | 0.4 | 1.5 | 10.0 | --- | --- |
| Gleaner Clearing House Association, Detroit, Mich. | | | | | | |
| Gleaner 2-10 Fertilizer | 6543 | 1.6 | --- | 10.0 | 0.5 | --- |
| Corn and Grain Special | 6907 | 0.8 | 1.0 | 10.0 | 0.5 | --- |
| Phosphoric Acid and Potash | 6908 | --- | 2.0 | 10.0 | 0.5 | --- |
| Ammonia and Phosphoric Acid | 6909 | 1.6 | --- | 10.0 | 0.5 | --- |
| Globe Fertilizer Company, Louisville, Ky. | | | | | | |
| Acorn Acid Phosphate | 2719 | --- | --- | 10.0 | --- | --- |
| Globe Acid Phosphate | 2720 | --- | --- | 14.0 | --- | --- |
| Globe High Grade Acid Phosphate | 3608 | --- | --- | 16.0 | --- | --- |
| Globe Raw Bone | 3643 | 3.7 | --- | --- | --- | 22.0 |
| Standard Acid Phosphate | 3676 | --- | --- | 12.0 | --- | --- |
| Wheat & Grain Special | 3680 | 0.8 | 1.0 | 12.0 | --- | --- |
| Tankage | 3880 | 8.2 | --- | --- | --- | 11.0 |
| Acorn Raw Bone | 4090 | 2.4 | --- | --- | --- | 24.0 |
| Globe Grain & Grass Grower | 4269 | 0.4 | 1.0 | 11.0 | --- | --- |
| Globe Money-Maker | 5884 | 0.4 | 1.0 | 13.0 | --- | --- |
| Globe Clay Land Crop Grower | 5885 | 1.2 | 0.5 | 12.5 | --- | --- |
| Globe Grain-O-Phosphate | 5890 | 0.4 | --- | 15.0 | --- | --- |
| Globe Golden Harvest | 5891 | 2.4 | --- | 10.0 | --- | --- |
| Globe Blood, Bone Phosphate & Potash | 5892 | 0.4 | 1.0 | 11.0 | --- | --- |
| Globe Half & Half Meal Mixture | 5893 | 1.6 | --- | 10.0 | 10.0 | --- |
| Globe Bone Phosphate Dust | 5895 | 0.8 | 1.0 | 9.0 | --- | --- |
| Universal Crop & Tobacco Fertilizer | 6454 | 1.2 | --- | 10.0 | --- | --- |
| Globe Gold Medal Mixture 1916 | 6455 | 0.4 | --- | 12.0 | --- | --- |
| Globe Soluble Vegetable Manure, 1916 | 6456 | 2.0 | --- | 12.5 | --- | --- |
| Globe Tip Top Fertilizer | 6457 | 0.8 | --- | 16.0 | --- | --- |
| Globe Grain Fertilizer | 6458 | 0.4 | 0.5 | 9.0 | --- | --- |
| Globe Good Luck Fertilizer | 6459 | 0.4 | 0.5 | 11.5 | --- | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Globe Fertilizer Company, Louisville, Ky. | | | | | | |
| Progress Corn & Wheat Fertilizer | 6460 | 1.0 | 0.5 | 10.0 | ---- | ---- |
| Eagle Corn & Wheat Fertilizer | 6461 | 1.0 | 0.5 | 10.0 | ---- | ---- |
| Braden Formula 1916 | 6462 | 1.2 | 0.5 | 10.0 | ---- | ---- |
| Globe Tip Top Ammoniated Phosphate | 6634 | 0.4 | ---- | 12.0 | 10.0 | ---- |
| Globe King Fertilizer | 6806 | 0.8 | ---- | 8.0 | 12.0 | ---- |
| Globe Tip Top Grain Grower | 6807 | 0.4 | 0.5 | 9.0 | 9.0 | ---- |
| Globe Complete Corn & Wheat Grower | 6913 | 1.2 | 0.5 | 8.0 | ---- | ---- |
| Eagle Fertilizer | 6939 | 0.4 | 0.5 | 11.5 | ---- | ---- |
| Progress Fertilizer | 6940 | 0.4 | 0.5 | 11.5 | ---- | ---- |
| A-1 Braden Formula | 6941 | 0.4 | 0.5 | 12.5 | ---- | ---- |
| Globe Clay Land Formula | 6942 | 0.4 | 0.5 | 12.5 | ---- | ---- |
| Globe Double-Value | 6943 | 0.8 | ---- | 10.0 | 10.0 | ---- |
| Front Rank Fertilizer | 6944 | 0.4 | ---- | 10.0 | 10.0 | ---- |
| Globe Grain Maker | 6945 | 0.4 | ---- | 14.0 | ---- | ---- |
| Globe Phosphate & Tobacco Fertilizer | 6946 | 0.1 | 0.3 | 16.0 | ---- | ---- |
| Globe Good Luck Meal Mixture | 7002 | 0.8 | ---- | 10.0 | 10.0 | ---- |
| Globe Front Rank Fertilizer | 7079 | 0.4 | ---- | 10.0 | 12.0 | ---- |
| Old Cap's Tobacco Compound | 7080 | 0.4 | 1.5 | 10.0 | ---- | ---- |
| Globe Tip Top Potash Fertilizer | 7081 | ---- | 2.0 | 8.0 | 8.0 | ---- |
| Big Spread Tobacco Mixture | 7082 | 1.2 | 0.5 | 8.0 | 8.0 | ---- |
| Braden Tobacco Formula | 7083 | 0.4 | 1.0 | 8.0 | 8.0 | ---- |
| Globe Double-Value Phosphate | 7084 | ---- | ---- | 10.0 | 14.0 | ---- |
| Globe Double Phosphate & Potash | 7085 | ---- | 1.0 | 10.0 | 10.0 | ---- |
| Goldreich Fertilizer Company, Marion, Ind. | | | | | | |
| Goldreich Special | 5646 | 6.0 | ---- | ---- | ---- | 11.0 |
| Goodrich, Wm. J., Royal Center, Ind. | | | | | | |
| General Crop Grower | 6134 | 1.0 | 3.0 | 8.0 | ---- | ---- |
| Goodrich Twelve Two | 6922 | ---- | 2.0 | 12.0 | ---- | ---- |
| Goodrich Four Five | 6923 | ---- | 5.0 | 4.0 | ---- | ---- |
| Groves Fertilizer Works (The Joslin-Schmidt Co.), Cincinnati, Ohio | | | | | | |
| Monarch Brand | 5909 | ---- | ---- | 14.0 | 1.0 | ---- |
| Ammoniated Phosphate | 5910 | 1.6 | ---- | 12.0 | 1.0 | ---- |
| 16% Acid Phosphate | 5912 | ---- | ---- | 16.0 | 1.0 | ---- |
| Economy Brand | 5914 | 0.8 | 1.0 | 10.0 | 1.0 | ---- |
| 2-27 Bone | 5917 | 1.6 | ---- | ---- | ---- | 27.0 |
| Groves Raw Bone | 6064 | 3.7 | ---- | ---- | ---- | 22.0 |
| Harvest King | 6193 | 0.8 | 1.0 | 8.0 | 1.0 | ---- |
| Bone and Phosphate | 6378 | 0.8 | ---- | 10.0 | 10.0 | ---- |
| Grain Grower | 6713 | 0.8 | ---- | 12.0 | 1.0 | ---- |
| Ideal Crop Grower | 6852 | 0.4 | ---- | 12.0 | 1.0 | ---- |
| Perfect Driller | 7053 | 0.4 | ---- | 8.0 | 8.0 | ---- |
| Groves Half and Half | 7054 | 0.8 | 1.0 | 8.0 | 8.0 | ---- |
| Hancock Fertilizer Co., Inc., The, Greenfield, Ind. | | | | | | |
| Bone Meal | 7147 | 2.0 | ---- | ---- | ---- | 22.0 |
| Hess & Bro., Inc., S. M., Subsidiary of The American Agricultural Chemical Company, Philadelphia, Pa. | | | | | | |
| High Grade Acid Phosphate | 6673 | ---- | ---- | 14.0 | 1.0 | ---- |
| Special High Grade Acid Phosphate | 6674 | ---- | ---- | 16.0 | ---- | ---- |
| Standard Super Phosphate | 6675 | 0.8 | ---- | 10.0 | ---- | ---- |
| Superior Super Phosphate | 6676 | 1.6 | ---- | 10.0 | ---- | ---- |
| Indiana Special Phosphate | 6677 | 1.6 | ---- | 12.0 | ---- | ---- |
| Keystone Phosphate | 6678 | 0.8 | 1.0 | 8.0 | 1.0 | ---- |
| Special Corn Manure, 1916 | 6679 | 0.8 | 1.0 | 10.0 | ---- | ---- |
| Wheat & Grass Manure, 1916 | 6680 | 0.8 | 1.0 | 10.0 | ---- | ---- |
| Ammoniated Super Phosphate, 1916 | 6681 | 1.6 | 1.0 | 8.0 | ---- | ---- |
| Big Crop Fertilizer, 1916 | 6682 | 1.6 | 1.0 | 10.0 | ---- | ---- |
| Potato Manure, 1916 | 6683 | 2.4 | 1.0 | 10.0 | ---- | ---- |
| Hess' Ground Bone | 6684 | 2.4 | ---- | ---- | ---- | 20.0 |
| Alkaline Phosphate | 6733 | ---- | 1.0 | 12.0 | ---- | ---- |
| Special Ground Bone | 6865 | 1.6 | ---- | ---- | ---- | 27.0 |
| Reliable Super Phosphate | 6924 | 2.4 | ---- | 10.0 | ---- | ---- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|--|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Hilgemeier & Bro., F., Indianapolis, Ind. Dried Blood Fertilizer | 7137 | 8.0 | --- | --- | --- | --- |
| Hopkins Fertilizer Company, New Albany, Ind. Hopkins "Old Times Pure Raw Bone" | 3430 | 3.5 | --- | --- | --- | 21.5 |
| Nitrate of Soda | 4515 | 15.0 | --- | --- | --- | --- |
| Hopkins High Grade Acid Phosphate | 4606 | --- | --- | 14.0 | 1.0 | --- |
| Raw Rock Phosphate | 5132 | --- | --- | --- | --- | 30.0 |
| Hopkins Steamed Bone | 5514 | 2.0 | --- | --- | --- | 27.0 |
| Hopkins Ground Tobacco Stems | 5678 | 2.5 | 8.0 | --- | --- | --- |
| Good Enough No. 1 | 5777 | 0.8 | 1.0 | 12.0 | 1.0 | --- |
| Hopkins Climax Acid Phosphate | 6139 | --- | --- | 16.0 | 1.0 | --- |
| Indiana Special No. 2 | 6210 | 0.3 | 1.0 | 15.0 | 1.0 | --- |
| Wheat & Corn Grower No. 2 | 6307 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| Favorite | 6308 | 1.6 | --- | 12.0 | 1.0 | --- |
| Tankage & Phosphate Special | 6309 | 0.8 | --- | 12.0 | 1.0 | --- |
| Half & Half No. 1 | 6310 | 1.6 | 1.0 | 6.0 | 6.0 | --- |
| Hoosier Special | 6311 | 0.4 | 0.5 | 8.0 | 1.0 | --- |
| Truck Grower No. 1 | 6482 | 0.6 | 2.5 | 7.0 | 1.0 | --- |
| Bone Potash & Phosphate No. 1 | 6605 | 0.8 | 1.0 | 9.0 | 1.0 | --- |
| Ammoniated Phosphate Special | 6627 | 1.6 | --- | 10.0 | 1.0 | --- |
| Hopkins' Half Seven Three | 6666 | 0.4 | 3.0 | 7.0 | 1.0 | --- |
| Blood, Bone & Phosphate No. 1 | 6704 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Hopkins Half-Ten-Five | 6867 | 0.4 | 5.0 | 10.0 | 1.0 | --- |
| Indiana Special No. 2 Fertilizer | 6968 | 0.3 | 1.0 | 14.0 | 1.0 | --- |
| Hoosier Brand | 7097 | 0.4 | --- | 10.0 | 1.0 | --- |
| Harvest King | 7098 | 0.8 | --- | 10.0 | 1.0 | --- |
| Hurst & Company, Indianapolis, Ind. Hurst's Corn and Wheat Grower 2-8-2 | 6893 | 1.6 | 2.0 | 8.0 | 1.0 | --- |
| Hurst's Winner 1-8-2 | 6894 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Hurst's Farmer's Favorite 1-13 | 6895 | 0.8 | --- | 13.0 | 1.0 | --- |
| Hurst's Triumph Brand 1-10-1 | 6896 | 0.8 | 1.0 | 10.0 | 1.0 | --- |
| Hurst's Acid Phosphate Sixteen Percent | 6897 | --- | --- | 16.0 | 1.0 | --- |
| Independent Packers Fertilizer Company, The, Columbus, Ohio Number Two, Bone Meal and Phosphate Mixture | 6255 | 0.8 | 1.0 | 8.0 | 8.0 | --- |
| Number 5, Universal Crop (1916) | 6646 | 1.6 | --- | 10.0 | --- | --- |
| Number 1, Independent Favorite (1917) | 6849 | 0.8 | 0.5 | 11.0 | --- | --- |
| Number 3, Corn Wheat Oats & Clover (1917) | 6850 | 0.8 | 0.5 | 8.0 | --- | --- |
| Number 4, Independent Grain Special | 6851 | 0.8 | 1.0 | 8.0 | --- | --- |
| Number 9, Ammoniated Phosphate (1918) | 7043 | 0.4 | --- | 12.0 | --- | --- |
| No. 8—Ammoniated Special | 7112 | 0.4 | --- | 10.0 | --- | --- |
| No. 6—Truck & Tobacco Special | 7113 | 0.8 | 2.0 | 8.0 | --- | --- |
| Indianapolis Rendering Company, Indianapolis, Ind. Superphosphate | 3264 | --- | --- | 14.0 | --- | --- |
| Our Grain Grower | 3561 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Corn & Wheat Grower | 3562 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Our Half & Half | 4807 | 1.2 | --- | 8.0 | 11.0 | --- |
| Complete Manure | 5811 | 0.8 | 1.0 | 9.0 | --- | --- |
| 16% Acid Phosphate | 6186 | --- | --- | 16.0 | --- | --- |
| Superphosphated Manure | 6238 | 1.0 | --- | 10.0 | 1.0 | --- |
| Corn & Wheat Grower without Potash | 6277 | 0.8 | --- | 8.0 | --- | --- |
| Soil Food | 6278 | 0.8 | 0.5 | 8.0 | --- | --- |
| Plant Food | 6279 | 0.8 | 1.0 | 12.0 | --- | --- |
| Black Soil Formula | 6280 | 0.4 | 3.0 | 5.0 | --- | --- |
| Bone Phosphate & Potash | 6700 | 0.8 | 3.0 | 8.0 | --- | --- |
| Ammoniated Phosphate | 7026 | 0.4 | --- | 10.0 | --- | --- |
| International Agricultural Corporation, Cincinnati Works, Cincinnati, O. Ideal Phosphate | 5383 | --- | --- | 14.0 | --- | --- |
| Hubbell's Crop Maker | 6006 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Hubbell's High Phosphate and Potash | 6007 | --- | 2.0 | 12.0 | 1.0 | --- |
| C. F. & C. W. Meteor Brand | 6011 | 1.6 | 2.0 | 8.0 | 1.0 | --- |
| C. F. & C. W. Crown Brand | 6013 | 0.8 | 2.0 | 8.0 | 1.0 | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|--|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| International Agricultural Corporation, Cincinnati Works, Cincinnati, O. | | | | | | |
| C. F. & C. W. Best Acid Phosphate | 6015 | --- | --- | 14.0 | 1.0 | --- |
| Buffalo Grain and Grass Grower | 6021 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Buffalo Phosphate and Potash | 6022 | --- | 2.0 | 12.0 | 1.0 | --- |
| Buffalo Dissolved Phosphate | 6023 | --- | --- | 14.0 | 1.0 | --- |
| I. A. C. 16% Acid Phosphate | 6024 | --- | --- | 16.0 | 1.0 | --- |
| I. A. C. Bone Meal | 6026 | 2.4 | --- | --- | --- | 22.0 |
| I. A. C. Fine Steamed Bone | 6027 | 0.8 | --- | --- | --- | 29.0 |
| Buffalo Garbage Tankage and Phosphate | 6174 | 0.4 | --- | 12.5 | 1.0 | --- |
| 18% Acid Phosphate | 6204 | --- | --- | 18.0 | 0.5 | --- |
| Wheat Corn & Oat Special | 6244 | 0.8 | 1.0 | 10.0 | 1.0 | --- |
| Buffalo Complete Fertilizer | 6549 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Buffalo Crop Grower | 6550 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Buffalo Ammoniated Phosphate | 6551 | 1.6 | --- | 10.0 | 1.0 | --- |
| Farmers Favorite | 6552 | 0.8 | --- | 10.0 | 1.0 | --- |
| Buffalo Buckeye Brand | 6553 | --- | 1.0 | 10.0 | 1.0 | --- |
| Hubbell's Complete Fertilizer | 6554 | 1.8 | 1.0 | 8.0 | 1.0 | --- |
| Hubbell's Wheat Corn & Oats Special | 6555 | 0.8 | 1.0 | 10.0 | 1.0 | --- |
| Hubbell's Crop Grower | 6556 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Hubbell's Hoosier Brand | 6557 | --- | 1.0 | 10.0 | 1.0 | --- |
| C. F. & C. W. Triumph Brand | 6566 | --- | 1.0 | 10.0 | 1.0 | --- |
| C. F. & C. W. Smith's Special | 6567 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| C. F. & C. W. Red Ribbon Brand | 6568 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Buffalo Grain Grower | 6725 | 0.8 | --- | 13.0 | 2.0 | --- |
| Buffalo Two Eight Two | 6799 | 1.6 | 2.0 | 8.0 | 1.0 | --- |
| Hubbell's Indiana Highland 2-8-2 | 6855 | 1.6 | 2.0 | 8.0 | 1.0 | --- |
| Special Wheat Fertilizer | 6938 | 0.8 | --- | --- | --- | 22.0 |
| Hubbell High Potash Substitute | 7132 | --- | 2.0 | 10.0 | 1.0 | --- |
| James & Company, C. C., Chicago, Ill. | | | | | | |
| James 16% Acid Phosphate | 7096 | --- | --- | 16.0 | --- | --- |
| Jarecki Chemical Company, The, Cincinnati, Ohio | | | | | | |
| C. O. D. Phosphate | 2918 | --- | --- | 14.0 | 1.0 | --- |
| Number One Guano with Phosphate and Potash | 4288 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Ground Bone | 5189 | 1.6 | --- | --- | --- | 27.0 |
| Raw Bone | 5559 | 3.7 | --- | --- | --- | 22.0 |
| A. Middle West Formula | 5818 | 0.8 | 1.0 | 12.0 | 1.0 | --- |
| A. Number One Formula | 5819 | 0.8 | 1.0 | 9.0 | 1.0 | --- |
| An Acid Phosphate | 6145 | --- | --- | 16.0 | 1.0 | --- |
| Jarecki's Cereals | 6296 | 1.6 | --- | 12.0 | 1.0 | --- |
| Jarecki's Lake Erie Guano with Phosphate & Potash | 6297 | 1.2 | 1.0 | 9.0 | 1.0 | --- |
| Ammoniated Phosphate | 6298 | 0.8 | --- | 10.0 | 1.0 | --- |
| Tobacco & Truck Grower | 6299 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Revised Black Soil Special | 6575 | 0.4 | 2.0 | 6.0 | 1.0 | --- |
| Revised Indiana Black Soil Special | 6576 | 0.4 | 3.0 | 6.0 | 1.0 | --- |
| C-Raw Bone & Phosphate Mixture | 6751 | 1.6 | --- | 8.0 | 8.0 | --- |
| Jarecki's Little Giant | 6759 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| A. Tobacco & Truck Grower | 7045 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Jones Phosphate Company, The Robin, Nashville, Tenn. | | | | | | |
| Ground Phosphate Rock | 5451 | --- | --- | --- | --- | 28.0 |
| Kaufman Fertilizer Company, The, Cincinnati, Ohio | | | | | | |
| "A" Harvest King | 4291 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| "Dissolved Phosphate" | 4731 | --- | --- | 14.0 | 1.0 | --- |
| A. Complete Ration | 5836 | 0.8 | 1.0 | 12.0 | 1.0 | --- |
| Kaufman Harvest King | 5839 | 0.8 | 1.0 | 9.0 | 1.0 | --- |
| A. Special Wheat Fertilizer | 5840 | 0.8 | 1.0 | 9.0 | 1.0 | --- |
| Kaufman's Corn Wheat & Oats Grower | 6300 | 1.2 | 1.0 | 9.0 | 1.0 | --- |
| Kaufman's Special Potato & Tobacco Fertilizer | 6301 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Jewel Plant Food | 6302 | 1.6 | --- | 12.0 | 1.0 | --- |
| Phosphate and Ammonia | 6303 | 0.8 | --- | 10.0 | 1.0 | --- |
| Revised Indiana Black Soil Special | 6580 | 0.4 | 3.0 | 6.0 | 1.0 | --- |
| Revised Black Soil Special | 6581 | 0.4 | 2.0 | 6.0 | 1.0 | --- |
| Acid Phosphate 16% | 6707 | --- | --- | 16.0 | 1.0 | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|--|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Kaufman Fertilizer Company, The, Cincinnati, Ohio | | | | | | |
| A Pure Bone | 6756 | 1.6 | --- | --- | --- | 27.0 |
| Kaufman's Half & Half | 6757 | 1.6 | --- | 8.0 | 8.0 | --- |
| Kaufman's Banner Crop Grower | 6760 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| Kaufman's A. Special Potato and Tobacco Fertilizer | 7047 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Kentucky Fertilizer Company, Branch, Federal Chemical Company, Inc., Louisville, Ky. | | | | | | |
| O. K. Corn, Wheat & Oat Grower | 4559 | 0.4 | 1.0 | 11.0 | 1.0 | --- |
| O. K. Grain Grower | 4560 | 0.4 | 1.0 | 11.0 | 1.0 | --- |
| O. K. Phosphate | 4563 | --- | --- | 14.0 | --- | --- |
| Standard Phosphate | 4564 | --- | --- | 12.0 | --- | --- |
| Good Luck Phosphate | 4565 | --- | --- | 10.0 | --- | --- |
| O. K. Raw Bone | 4566 | 3.7 | --- | --- | --- | 22.0 |
| O. K. Fine Raw Bone | 4567 | 2.4 | --- | --- | --- | 24.0 |
| O. K. High Grade Acid Phosphate | 5508 | --- | --- | 16.0 | --- | --- |
| O. K. Wheat & Grain Special | 5767 | 0.8 | 1.0 | 12.0 | --- | --- |
| O. K. Ammoniated Phosphate | 5898 | 0.4 | --- | 15.0 | --- | --- |
| O. K. Clay Land Crop Grower | 5902 | 1.2 | 0.5 | 12.5 | --- | --- |
| O. K. Old Reliable | 5903 | 0.4 | 1.0 | 13.0 | --- | --- |
| O. K. Special Meal Mixture | 5904 | 2.4 | --- | 10.0 | --- | --- |
| O. K. Half & Half Meal Mixture | 5905 | 1.6 | --- | 10.0 | 10.0 | --- |
| O. K. Corn, Wheat & Clover Grower | 6409 | 0.8 | 1.0 | 9.0 | --- | --- |
| O. K. Grain Special | 6410 | 0.4 | 0.5 | 9.0 | --- | --- |
| O. K. Special Mixture | 6411 | 0.4 | 0.5 | 11.5 | --- | --- |
| O. K. Corn & Wheat Fertilizer | 6412 | 1.0 | 0.5 | 10.0 | --- | --- |
| O. K. Gold Medal Corn & Wheat Grower | 6413 | 1.2 | 0.5 | 10.0 | --- | --- |
| O. K. Mixture | 6414 | 0.4 | --- | 12.0 | --- | --- |
| O. K. Special Crop Grower 1916 | 6415 | 0.8 | --- | 16.0 | --- | --- |
| O. K. Gold Medal Ammoniated Phosphate | 6636 | 0.4 | --- | 12.0 | 10.0 | --- |
| O. K. Golden King Fertilizer | 6804 | 0.8 | --- | 8.0 | 12.0 | --- |
| O. K. Gold Medal Grain Grower | 6805 | 0.4 | 0.5 | 9.0 | 9.0 | --- |
| O. K. Tobacco Fertilizer | 6931 | 1.0 | 0.5 | 10.0 | --- | --- |
| O. K. Gold Medal Wheat & Corn Maker | 6960 | 0.4 | 0.5 | 11.5 | --- | --- |
| O. K. Crop Maker | 6961 | 0.4 | 0.5 | 11.5 | --- | --- |
| O. K. Clay Land Corn & Wheat Grower | 6962 | 0.4 | 0.5 | 12.5 | --- | --- |
| O. K. Double-Header | 6963 | 0.8 | --- | 10.0 | 10.0 | --- |
| O. K. Life-Saver | 6964 | 0.4 | --- | 10.0 | 10.0 | --- |
| O. K. Bread-Winner | 6965 | 0.4 | --- | 14.0 | --- | --- |
| Level-Best Phosphate | 7086 | --- | --- | 10.0 | 14.0 | --- |
| O. K. Level Best Tobacco Compound | 7087 | 0.4 | 1.5 | 10.0 | --- | --- |
| Gold Medal Potash Fertilizer | 7088 | --- | 2.0 | 8.0 | 8.0 | --- |
| O. K. Double Phosphate & Potash | 7089 | --- | 1.0 | 10.0 | 10.0 | --- |
| Farmer's Friend Tobacco Mixture | 7090 | 1.2 | 0.5 | 8.0 | 8.0 | --- |
| O. K. Tobacco Formula | 7091 | 0.4 | 1.0 | 8.0 | 8.0 | --- |
| O. K. Life-Saver Fertilizer | 7092 | 0.4 | --- | 10.0 | 12.0 | --- |
| Kirke Chemical Company, Brooklyn, N. Y. | | | | | | |
| Kirke Fertilizer | 6590 | 5.0 | 3.1 | 7.5 | 0.7 | --- |
| Louisville Fertilizer Company, Louisville, Ky. | | | | | | |
| Special Wheat Grower | 2786 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Eagle Guano | 3423 | 1.6 | 2.0 | 10.0 | 1.0 | --- |
| Eagle Indiana Special Corn Grower | 3424 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Nitrate of Soda | 3501 | 15.0 | --- | --- | --- | --- |
| Eagle Indiana Phosphate | 3564 | --- | --- | 12.0 | 1.0 | --- |
| Eagle Fine Raw Bone Meal | 5312 | 2.4 | --- | --- | --- | 24.0 |
| Eagle Grain Formula | 5714 | 0.4 | 3.0 | 10.0 | 0.5 | --- |
| Eagle Special Grain Grower | 5715 | 0.4 | 3.0 | 8.0 | 0.5 | --- |
| Eagle High Grade Dissolved Bone Phosphate | 5985 | --- | --- | 14.0 | 0.5 | --- |
| Eagle Sixteen Percent. | 5986 | --- | --- | 16.0 | 0.5 | --- |
| Eagle Bone Phosphate & Potash | 5988 | 0.4 | 1.0 | 11.0 | 0.5 | --- |
| Eagle Slaughter House Bone & Phosphate | 5989 | 1.6 | 2.0 | 8.0 | 0.5 | --- |
| Grain Formula Special | 6249 | 0.4 | 2.0 | 10.0 | 0.5 | --- |
| Special Grain Grower Formula | 6250 | 0.4 | 2.0 | 8.0 | 0.5 | --- |
| Indiana Special Wheat Formula | 6251 | 0.8 | 2.0 | 12.0 | 0.5 | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|--|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Louisville Fertilizer Company, Louisville, Ky. | | | | | | |
| One Ten One Fertilizer | 6402 | 0.8 | 1.0 | 10.0 | 0.5 | --- |
| Eagle Ammoniated Phosphate | 6403 | 1.6 | --- | 10.0 | 0.5 | --- |
| Special Slaughter House Bone Phosphate | 6404 | 1.6 | 1.0 | 8.0 | 0.5 | --- |
| Eagle Grain Grower Special | 6405 | 0.4 | 1.0 | 8.0 | 0.5 | --- |
| Eagle Guano Special | 6574 | 1.6 | 1.0 | 10.0 | 0.5 | --- |
| Soluble Bone & Phosphate | 6728 | 0.8 | 1.5 | 8.0 | 0.5 | --- |
| Eagle One Eight Three | 6730 | 0.8 | 3.0 | 8.0 | 0.5 | --- |
| Eagle One Twelve One Fertilizer | 6858 | 0.8 | 1.0 | 12.0 | 0.5 | --- |
| Eagle Twelve One Fertilizer | 6859 | --- | 1.0 | 12.0 | 0.5 | --- |
| Bear Fine Raw Bone Meal | 6868 | 2.4 | --- | --- | --- | 24.0 |
| Bear Special Corn & Wheat Grower | 6870 | 0.8 | 1.0 | 7.0 | 0.5 | --- |
| Bear Grain Grower Special | 6871 | 0.4 | 1.0 | 8.0 | 0.5 | --- |
| Bear Special Grain Grower | 6872 | 0.4 | 3.0 | 8.0 | 0.5 | --- |
| Bear Bone Phosphate & Potash | 6873 | 0.4 | 1.0 | 11.0 | 0.5 | --- |
| Bear Indiana Potash Mixture | 6874 | --- | 1.0 | 10.0 | 0.5 | --- |
| Bear Special Slaughter House Bone Phosphate | 6875 | 1.6 | 1.0 | 8.0 | 0.5 | --- |
| Bear Ammoniated Phosphate | 6876 | 1.6 | --- | 10.0 | 0.5 | --- |
| Bear Ammoniated Potash Mixture | 6877 | 0.2 | 2.0 | 12.0 | 0.5 | --- |
| Bear High Grade Dissolved Phosphate | 6878 | --- | --- | 14.0 | 0.5 | --- |
| Jones Ammoniated Potash Mixture | 6879 | 0.2 | 2.0 | 12.0 | 0.5 | --- |
| Jones Special Grain Grower | 6880 | 0.4 | 3.0 | 8.0 | 0.5 | --- |
| Jones Grain Grower Special | 6881 | 0.4 | 1.0 | 8.0 | 0.5 | --- |
| Jones Sixteen Per Cent | 6882 | --- | --- | 16.0 | 0.5 | --- |
| Jones High Grade Dissolved Phosphate | 6883 | --- | --- | 14.0 | 0.5 | --- |
| Jones Twelve One Fertilizer | 6884 | --- | 1.0 | 12.0 | 0.5 | --- |
| Jones Ammoniated Phosphate | 6885 | 1.6 | --- | 10.0 | 0.5 | --- |
| Jones One Ten One Fertilizer | 6886 | 0.8 | 1.0 | 10.0 | 0.5 | --- |
| Jones Special Slaughter House Bone Phosphate | 6887 | 1.6 | 1.0 | 8.0 | 0.5 | --- |
| Jones Special Corn & Wheat Grower | 6888 | 0.8 | 1.0 | 7.0 | 0.5 | --- |
| Jones Bone Phosphate & Potash | 6889 | 0.4 | 1.0 | 11.0 | 0.5 | --- |
| Jones Fine Raw Bone Meal | 6891 | 2.4 | --- | --- | --- | 24.0 |
| Eagle Special 1—12 Fertilizer | 7004 | 0.8 | --- | 12.0 | 0.5 | --- |
| Eagle 1—14 Fertilizer | 7005 | 0.8 | --- | 14.0 | 0.5 | --- |
| Hoosier Tomato Grower | 7104 | 1.6 | 1.0 | 10.0 | 0.5 | --- |
| Louisville Standard | 7105 | 0.8 | 1.0 | 8.0 | 0.5 | --- |
| Hoosier Favorite | 7106 | 0.4 | --- | 10.0 | 0.5 | --- |
| McCartney Bros., Greenville, Ohio | | | | | | |
| "C" Perfection Crop Maker and Potash | 6925 | --- | 1.0 | 11.0 | 1.0 | --- |
| "O" Prize-Taker, Tobacco & Potato Special | 6926 | 1.0 | 1.0 | 8.0 | 1.0 | --- |
| "16% Acid Phosphate" | 7003 | --- | --- | 16.0 | --- | --- |
| Major Bros. Packing Company, The, Mishawaka, Ind. | | | | | | |
| Major's Fertilizer | 4217 | 3.5 | --- | --- | --- | 16.0 |
| Morris & Company, Chicago, Ill. | | | | | | |
| Big One—Pure Ground Raw Bone | 4091 | 3.0 | --- | --- | --- | 24.0 |
| Big Two—Pure Bone Meal | 4092 | 2.0 | --- | --- | --- | 28.0 |
| Big Eight—Ammoniated Acid Phosphate and Potash | 4098 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Big Five | 4352 | 2.5 | 1.0 | 6.0 | 4.0 | --- |
| Big Ten Prepared Manure with Phosphate and Potash | 5146 | 1.6 | 2.0 | 8.0 | 2.0 | --- |
| Special Big Six | 6530 | 0.4 | 1.0 | --- | --- | 16.0 |
| Special Big Seven | 6531 | 0.8 | --- | --- | --- | 22.0 |
| Special Big Nine | 6532 | 0.4 | 1.0 | 11.0 | 2.0 | --- |
| Special Big Eleven | 6534 | 0.8 | --- | 10.0 | 1.0 | --- |
| Special Big Twelve | 6535 | 1.6 | --- | 12.0 | 2.0 | --- |
| Special Big Three | 6721 | 0.4 | 3.0 | 11.0 | 2.0 | --- |
| Special Big Four Fertilizer | 7055 | 0.4 | --- | 13.0 | 5.0 | --- |
| National Plant Food Company, Eau Claire, Wis. | | | | | | |
| Red Snapper Plant Food | 7136 | 5.0 | 1.2 | 4.0 | 8.0 | --- |
| Nitrate Agencies Company, Western Branch, Columbus, Ohio | | | | | | |
| Acid Phosphate 16% | 5576 | --- | --- | 16.0 | 1.0 | --- |
| Nitrate of Soda | 5578 | 15.0 | --- | --- | --- | --- |
| Nitropo | 7148 | 15.0 | 15.0 | --- | --- | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|--|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Packer Fertilizer Company, The, Indianapolis, Ind. | | | | | | |
| Packer's Superphosphate | 3253 | --- | --- | 14.0 | --- | --- |
| Our Wheat Grower | 3558 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Corn & Wheat Special | 3559 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Our Complete Fertilizer | 3560 | 0.8 | 3.0 | 8.0 | 1.0 | --- |
| Half & Half | 4797 | 1.2 | --- | 8.0 | 11.0 | --- |
| Grain Manure | 5805 | 0.8 | 1.0 | 9.0 | --- | --- |
| 16% Acid Phosphate | 6187 | --- | --- | 16.0 | --- | --- |
| Superphosphated Manure | 6239 | 1.0 | --- | 10.0 | 1.0 | --- |
| Black Soil Formula | 6282 | 0.4 | 3.0 | 5.0 | --- | --- |
| Plant Food | 6283 | 0.8 | 1.0 | 12.0 | --- | --- |
| Soil Food | 6284 | 0.8 | 0.5 | 8.0 | --- | --- |
| Corn & Wheat Special without Potash | 6286 | 0.8 | --- | 8.0 | --- | --- |
| Nitro Phosphate | 7024 | 0.4 | --- | 10.0 | --- | --- |
| Packers Fertilizer Company, The, Cincinnati, Ohio | | | | | | |
| Humus Phosphate | 3902 | 0.4 | --- | 12.0 | 1.0 | --- |
| Ammoniated Phosphate | 4296 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| "Acid Phosphate" | 4586 | --- | --- | 14.0 | 1.0 | --- |
| An Ammoniated Phosphate | 5847 | 0.8 | 1.0 | 9.0 | 1.0 | --- |
| A. Quality Brand | 5848 | 0.8 | 1.0 | 12.0 | 1.0 | --- |
| Big Bonanza | 6304 | 1.6 | --- | 12.0 | 1.0 | --- |
| Packer's Potato, Tobacco & Truck Manure | 6305 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Packer's Sweepstakes | 6306 | 1.2 | 1.0 | 9.0 | 1.0 | --- |
| Revised Black Soil Special | 6577 | 0.4 | 2.0 | 6.0 | 1.0 | --- |
| Revised Indiana Black Soil Special | 6578 | 0.4 | 3.0 | 6.0 | 1.0 | --- |
| Favorite Grain Grower | 6621 | 0.8 | --- | 10.0 | 1.0 | --- |
| Acid Phosphate 16% | 6708 | --- | --- | 16.0 | 1.0 | --- |
| A. Bone Meal | 6752 | 1.6 | --- | --- | --- | 27.0 |
| Pure Bone with Phosphate | 6753 | 1.6 | --- | 8.0 | 8.0 | --- |
| Packer's O. K. Fertilizer | 6761 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| Packer's A. Potato Tobacco and Truck Manure | 7048 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Pearl Packing House, The, Madison, Ind. | | | | | | |
| Yunker's Pearl Brand | 5492 | 5.0 | --- | --- | --- | 8.0 |
| Pero & Stoecker, Louisville, Ky. | | | | | | |
| Pure Animal Matter Corn and Wheat Grower | 3623 | 3.5 | --- | --- | --- | 10.0 |
| "A" Pure Bone Meal | 4999 | 3.0 | --- | --- | --- | 20.0 |
| Pulverized Manure Company, The, Chicago, Ill. | | | | | | |
| Wizard Brand Pure Ground Bone | 4610 | 2.0 | --- | --- | --- | 20.0 |
| Wizard Brand Pure Manure | 4656 | 1.7 | 1.0 | --- | --- | 1.0 |
| Wizard Brand Pulverized Sheep Manure | 4974 | 2.5 | 1.5 | --- | --- | 1.5 |
| Rasin-Monumental Company, Subsidiary of the Virginia-Carolina Chemical Company, Cincinnati Division, Cincinnati, Ohio. | | | | | | |
| Rasin's General Favorite | 6718 | 1.6 | 2.0 | 8.0 | 1.5 | --- |
| Rasin's Fenhumus Fertilizer | 6720 | 0.4 | --- | 12.0 | 1.5 | --- |
| Rasin's 14% Acid Phosphate | 6834 | --- | --- | 14.0 | 1.5 | --- |
| Rasin's 16% Acid Phosphate | 6835 | --- | --- | 16.0 | 1.5 | --- |
| Rasin's 20% Acid Phosphate | 6836 | --- | --- | 20.0 | 1.5 | --- |
| Rasin's Royal Grain Grower | 6837 | --- | 2.0 | 12.0 | 1.5 | --- |
| Rasin's Grain Fertilizer | 6838 | 0.8 | --- | 13.0 | 1.5 | --- |
| Rasin's Special Plant Food | 6839 | 1.6 | --- | 11.0 | 1.5 | --- |
| Rasin's Farmers' Success | 6841 | 0.8 | 1.0 | 8.0 | 1.5 | --- |
| Rasin's Reliable Wheat and Corn Fertilizer | 6842 | 0.8 | 2.0 | 8.0 | 1.5 | --- |
| Rasin's Big Giant Phosphate | 6843 | 0.8 | 3.0 | 8.0 | 1.5 | --- |
| Rasin's Phosphate and Bone Meal | 6844 | 0.8 | --- | 10.0 | 12.0 | --- |
| Rasin's Valley Pride | 7109 | 0.8 | 5.0 | 8.0 | 1.5 | --- |
| Rauh & Sons Fertilizer Company, E., Indianapolis, Ind. | | | | | | |
| Rauh's Red Star Phosphate | 3186 | --- | --- | 14.0 | --- | --- |
| Rauh's Half Pure Raw Bone & Half Pure Bone Phosphate | 3193 | 1.2 | --- | 8.5 | 11.0 | --- |
| Corn & Wheat Grower | 3553 | 0.8 | 2.0 | 8.0 | 1.0 | --- |
| Nitrate of Soda | 3742 | 15.6 | --- | --- | --- | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|--|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Rauh & Sons Fertilizer Company, E., Indianapolis, Ind | | | | | | |
| Soluble Fertilizer | 5801 | 0.8 | 1.0 | 7.0 | --- | --- |
| Cereal Manure | 5802 | 0.8 | 1.0 | 9.0 | --- | --- |
| 16% Acid Phosphate | 6185 | --- | --- | 16.0 | --- | --- |
| Superphosphated Manure | 6240 | 1.0 | --- | 10.0 | 1.0 | --- |
| Corn & Wheat Grower without Potash | 6287 | 0.8 | --- | 8.0 | --- | --- |
| Plant Food | 6288 | 0.8 | 1.0 | 12.0 | --- | --- |
| Black Soil Formula | 6289 | 0.4 | 3.0 | 5.0 | --- | --- |
| Soil Food | 6291 | 0.8 | 0.5 | 8.0 | --- | --- |
| Dissolved Bone Phosphate & Potash | 6701 | 0.8 | 3.0 | 8.0 | --- | --- |
| Ammoniated Phosphate | 7025 | 0.4 | --- | 10.0 | --- | --- |
| Read Phosphate Company, New Albany Sales Department, New Albany, Ind. | | | | | | |
| Read's High Grade Acid Phosphate | 3040 | --- | --- | 14.0 | 1.0 | --- |
| Nitrate of Soda | 3045 | 14.7 | --- | --- | --- | --- |
| Read's Complete Fertilizer | 4250 | 0.8 | 3.0 | 8.0 | 1.0 | --- |
| Read's Pure Raw Bone | 4597 | 3.5 | --- | --- | --- | 21.5 |
| Raw Rock Phosphate | 5134 | --- | --- | --- | --- | 30.0 |
| Indiana Special No. 1 | 5783 | 0.4 | 3.0 | 13.0 | 1.0 | --- |
| Complete No. 1 | 5785 | 0.8 | 2.0 | 10.0 | 1.0 | --- |
| Good Enough No. 1 | 5786 | 0.8 | 1.0 | 12.0 | 1.0 | --- |
| Read's Climax Acid Phosphate | 6138 | --- | --- | 16.0 | 1.0 | --- |
| Indiana Special No. 2 | 6211 | 0.3 | 1.0 | 15.0 | 1.0 | --- |
| Half & Half No. 1 | 6312 | 1.6 | 1.0 | 6.0 | 6.0 | --- |
| Hoosier Special | 6313 | 0.4 | 0.5 | 8.0 | 1.0 | --- |
| Tankage & Phosphate Special | 6314 | 0.8 | --- | 12.0 | 1.0 | --- |
| Ammoniated Potash & Phosphate No. 1 | 6315 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| Complete No. 2 | 6316 | 0.8 | 1.0 | 9.0 | 1.0 | --- |
| Favorite | 6317 | 1.6 | --- | 12.0 | 1.0 | --- |
| Truck Grower No. 1 | 6484 | 0.6 | 2.5 | 7.0 | 1.0 | --- |
| Half-Seven-Three | 6606 | 0.4 | 3.0 | 7.0 | 1.0 | --- |
| Blood Bone & Phosphate No. 1 | 6705 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Read's Steamed Bone | 6749 | 0.8 | --- | --- | --- | 29.0 |
| Read's Five-Five | 6866 | --- | 5.0 | 5.0 | 1.0 | --- |
| Ammoniated Potash & Phosphate No. 2 | 6929 | 0.5 | 1.1 | 9.4 | 2.5 | --- |
| Indiana Special No. 2 Fertilizer | 6966 | 0.3 | 1.0 | 14.0 | 1.0 | --- |
| Harvest King | 7099 | 0.8 | --- | 10.0 | 1.0 | --- |
| Hoosier Brand | 7100 | 0.4 | --- | 10.0 | 1.0 | --- |
| Royster Guano Company, F. S., Northern Division, Baltimore, Md. | | | | | | |
| Royster's 14% Acid Phosphate | 6782 | --- | --- | 14.0 | 0.5 | --- |
| Royster's H. G. 16% Acid Phosphate | 6783 | --- | --- | 16.0 | 0.5 | --- |
| Royster's Special Wheat Grower | 6785 | 0.8 | --- | 12.0 | 0.5 | --- |
| Royster's Penguin Ammoniated Superphosphate | 6786 | 1.6 | --- | 10.0 | 0.5 | --- |
| Royster's Cuckoo Crop Grower | 6787 | 0.8 | 1.0 | 8.0 | 0.5 | --- |
| Royster's Wheat Oats & Barley Fertilizer | 6788 | 0.8 | 2.0 | 8.0 | 0.5 | --- |
| Royster's Special Fish Guano | 6789 | 0.8 | 2.0 | 11.0 | 0.5 | --- |
| Royster's Dreadnought Fertilizer | 6791 | 1.6 | 2.0 | 8.0 | 0.5 | --- |
| Royster's Wonder Worker Guano | 6792 | 0.8 | 3.0 | 8.0 | 0.5 | --- |
| Royster's Fish Flesh & Fowl | 6829 | 1.6 | 3.0 | 8.0 | 0.5 | --- |
| Royster's Flamingo Ammoniated Superphosphate | 6830 | 2.0 | --- | 12.0 | 0.5 | --- |
| Royster's Dependo Grain Grower | 6904 | 0.4 | 0.5 | 13.0 | 0.5 | --- |
| Royster's Half and Half Wheat Fertilizer | 6991 | 0.4 | 0.5 | 8.0 | 0.5 | --- |
| Royster's Black Soil Guano | 7044 | 0.8 | 5.0 | 8.0 | 0.5 | --- |
| Royster's Cloverdale Grain & Grass Grower | 7125 | --- | 2.0 | 10.0 | 0.5 | --- |
| Ruhm, Jr., John, Mt. Pleasant, Tenn. | | | | | | |
| Ground Phosphate Rock | 4480 | --- | --- | --- | --- | 23.0 |
| Slover Fertilizer Company, The Edward, Camden, Ohio | | | | | | |
| Half Twelve | 6101 | 0.4 | --- | 12.0 | 1.0 | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|--|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Smith Agricultural Chemical Company, The, Indianapolis Factory, Indianapolis, Ind. | | | | | | |
| Tankage | 5074 | 8.0 | --- | --- | --- | --- |
| Nitrate Soda | 5075 | 14.4 | --- | --- | --- | 27.0 |
| Ground Bone | 5337 | 0.8 | --- | --- | --- | --- |
| Sixteen Percent Acid Phosphate | 5525 | --- | --- | 16.0 | --- | --- |
| Alkaline Phosphate | 6106 | --- | --- | 14.0 | --- | --- |
| Smith's No. 2 Wheat Maker & Seeding Down | 6597 | 0.8 | --- | 10.0 | --- | --- |
| Smith's No. 2 Crop Producer | 6598 | 1.6 | --- | 10.0 | --- | --- |
| Smith's General Crop Fertilizer | 6599 | 0.8 | 1.0 | 7.0 | --- | --- |
| Smith's No. 2 Vegetable Grower | 6601 | 2.4 | 1.0 | 8.0 | --- | --- |
| Smith's No. 2 Ammoniated Phosphate & Potash | 6602 | 0.8 | 1.0 | 9.0 | --- | --- |
| Smith's Grain Grower | 6603 | 0.8 | 1.0 | 15.0 | --- | --- |
| Smith's Eight Three | 6604 | --- | 3.0 | 8.0 | --- | --- |
| Smith's 14% Acid Phosphate | 6624 | --- | --- | 14.0 | --- | --- |
| Smith's Two-Eight-Two | 6626 | 1.6 | 2.0 | 8.0 | --- | --- |
| Smith's One-Eight-Three | 6740 | 0.8 | 3.0 | 8.0 | --- | --- |
| Smith's No. 3 Wheat Maker & Seeding Down | 6902 | 0.8 | --- | 12.0 | --- | --- |
| Smith's No. 4 Wheat Maker & Seeding Down | 6971 | 0.4 | --- | 12.0 | --- | --- |
| Smith's No. 1 General Crop | 6972 | 0.8 | --- | 10.0 | --- | --- |
| Smith's No. 4 Crop Producer | 6973 | 1.6 | --- | 10.0 | --- | --- |
| Smith's No. 3 Corn Oats & Wheat Fertilizer | 6975 | 0.4 | 2.0 | 8.0 | --- | --- |
| Smith's No. 4 Ammoniated Phosphate & Potash | 7115 | 0.8 | 1.0 | 8.0 | --- | --- |
| Smith's No. 3 Crop Producer | 7116 | 1.6 | --- | 12.0 | --- | --- |
| Smith's Five-Five | 7117 | --- | 5.0 | 5.0 | --- | --- |
| Smith's No. 1 Potash Formula | 7118 | 0.4 | 2.0 | 8.0 | --- | --- |
| Southern Fertilizer Company, Louisville, Ky. | | | | | | |
| Elk Corn and Wheat Grower | 5486 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Elk Standard Guano | 5487 | 1.6 | 2.0 | 8.0 | 1.0 | --- |
| Special Grain Grower | 5718 | 0.4 | 2.0 | 11.0 | 1.0 | --- |
| Elk General Crop Grower | 5906 | 0.4 | 1.0 | 10.0 | 1.0 | --- |
| Elk Special Lime Fertilizer | 6121 | 0.8 | 1.0 | 7.0 | 1.0 | --- |
| Elk Indiana Tobacco and Truck Grower | 6163 | 1.6 | 2.0 | 8.0 | 1.0 | --- |
| Elk Phosphate | 6245 | --- | --- | 14.0 | 1.0 | --- |
| Indiana Standard Guano | 6618 | 1.6 | 1.0 | 8.0 | 0.5 | --- |
| Atlas Phosphate | 6990 | --- | --- | 16.0 | 0.5 | --- |
| Stadler Rendering & Fertilizer Company, J. L. & H., Cleveland, Ohio | | | | | | |
| Stadler's Pure Bone Meal | 5474 | 2.8 | --- | --- | --- | 20.0 |
| Harvest King | 6661 | 0.8 | 1.0 | 9.0 | 0.5 | --- |
| Vegetable & Grain Grower | 6662 | 0.8 | 0.5 | 10.0 | 0.7 | --- |
| General Crop Grower | 6663 | 1.6 | 1.0 | 10.0 | 1.0 | --- |
| Ammoniated Phosphate and Potash | 6664 | 0.4 | 1.0 | 13.0 | 1.0 | --- |
| Stadler's Ammoniated Acid Phosphate | 6861 | 0.8 | --- | 10.0 | 1.0 | --- |
| Vegetable Manure | 6862 | 1.2 | --- | 12.0 | 1.0 | --- |
| Grain Grower | 6863 | 1.6 | --- | 10.0 | 1.0 | --- |
| Stadler's Onion Grower Special | 6914 | 0.8 | 3.0 | 8.0 | --- | --- |
| Stadler's Bone Meal and Acid Phosphate | 7096 | 1.4 | --- | 10.0 | 8.0 | --- |
| Sterling Fertilizer Company, The, Chicago, Ill. | | | | | | |
| Sterling Raw Bone Meal | 6091 | 3.3 | --- | --- | --- | 21.0 |
| Sterling Pure Bone Meal | 6092 | 1.8 | --- | --- | --- | 28.0 |
| Sterling 16% Acid Phosphate | 6638 | --- | --- | 16.0 | --- | --- |
| Sterling Special Grain Grower | 6639 | 0.8 | 1.0 | 9.0 | 2.0 | --- |
| Sterling Universal Fertilizer | 6640 | 1.6 | --- | 12.0 | 2.0 | --- |
| Sterling Golden Harvest Fertilizer | 6641 | 0.8 | 0.5 | 10.0 | 2.0 | --- |
| Sterling Harvest King Fertilizer | 6643 | 2.4 | 1.0 | 8.0 | 2.0 | --- |
| Sterling's Half & Half Brand | 6685 | 0.8 | --- | 12.0 | 11.0 | --- |
| Sterling Little Giant | 7012 | 0.8 | --- | 10.0 | 2.0 | --- |
| Sterling's Wonder Yield | 7027 | 1.6 | 1.0 | 12.0 | 2.0 | --- |
| Stolle & Sons, Anton, Richmond, Ind. | | | | | | |
| Stolle's Animal Fertilizer | 6147 | 4.5 | --- | --- | --- | 10.0 |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Swift & Company, Chicago, Ill. | | | | | | |
| Swift's Garden City Phosphate | 2716 | --- | --- | 14.0 | --- | --- |
| Swift's Pure Raw Bone Meal | 2755 | 3.7 | --- | --- | --- | 23.0 |
| Swift's Lawn Fertilizer | 3058 | 3.7 | --- | --- | --- | 23.0 |
| Swift's Pure Bone Meal & Blood | 3889 | 3.7 | --- | --- | --- | 23.0 |
| Swift's Ground Dried Blood | 4113 | 13.1 | --- | --- | --- | --- |
| Swift's Ground Steamed Bone | 4348 | 1.6 | --- | --- | --- | 20.0 |
| Swift's Pure Ground Bone Meal | 4874 | 2.5 | --- | --- | --- | 24.0 |
| Swift's Pure Complete Fertilizer | 5154 | 0.8 | 1.0 | 8.0 | 1.0 | --- |
| Swift's Nitrate of Soda | 5185 | 15.2 | --- | --- | --- | --- |
| Swift's Ground Beef Bone | 5186 | 2.0 | --- | --- | --- | 27.0 |
| Swift's Pure Dissolved Bone | 5371 | 1.6 | --- | 16.0 | 5.0 | --- |
| Swift's 1-8-3 Fertilizer | 5710 | 0.8 | 3.0 | 8.0 | 0.5 | --- |
| Pioneer 1-8-3 Fertilizer | 5729 | 0.8 | 3.0 | 8.0 | 0.5 | --- |
| Swift's Diamond K. Grain Grower | 5791 | 0.8 | 1.0 | 12.0 | 0.5 | --- |
| Swift's Diamond M. Grain Grower | 5793 | 1.6 | 1.0 | 11.0 | 1.0 | --- |
| Swift's Bone, Phosphate and Potash | 6118 | 0.8 | 1.5 | 10.0 | 11.0 | --- |
| Swift's Bone Meal and Phosphate | 6199 | 0.8 | --- | 13.0 | 7.0 | --- |
| Pioneer Bone Meal & Phosphate | 6242 | 0.8 | --- | 13.0 | 7.0 | --- |
| Swift's Special Superphosphate | 6366 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Swift's Clay Soil Special | 6367 | 1.6 | --- | 12.0 | 1.0 | --- |
| Swift's ½-10-1 Fertilizer | 6368 | 0.4 | 1.0 | 10.0 | --- | --- |
| Swift's Ammoniated Bone Phosphate & Potash | 6369 | 1.6 | 0.5 | 10.0 | 1.0 | --- |
| Swift's Tankage and Bone Phosphate | 6370 | 0.8 | --- | 12.0 | 0.5 | --- |
| Swift's Dissolved Animal Bone-Potash Mixture | 6371 | 1.2 | 1.0 | 16.0 | 4.5 | --- |
| Swift's Truck Fertilizer | 6562 | 2.4 | 1.0 | 8.0 | 1.0 | --- |
| Pioneer No. 5 Grain Grower | 6611 | 1.6 | --- | 12.0 | 1.0 | --- |
| Pioneer No. 4 Grain Grower | 6612 | 0.8 | 1.0 | 8.0 | 0.5 | --- |
| Pioneer General Crop Grower Special | 6613 | 1.6 | 1.0 | 8.0 | 1.0 | --- |
| Pioneer Corn and Oats Fertilizer | 6614 | 0.8 | --- | 12.0 | 0.5 | --- |
| Pioneer High Grade Acid Phosphate | 6781 | --- | --- | 14.0 | --- | --- |
| Swift's Sheep Manure Fertilizer | 6864 | 1.6 | 2.0 | --- | 1.5 | --- |
| Swift's 1-8-2 Fertilizer | 6899 | 0.8 | 2.0 | 8.0 | 0.5 | --- |
| Swift's Special Half and Half Fertilizer | 6915 | 1.6 | --- | 6.0 | 10.0 | --- |
| Swift's 1-8-6 Fertilizer | 6916 | 0.8 | 6.0 | 8.0 | 0.5 | --- |
| Swift's Bone Meal and Phosphate Fertilizer | 6932 | 0.8 | --- | 13.0 | 7.0 | --- |
| Swift's Dissolved Animal Bone-Potash Fertilizer | 6934 | 1.2 | 1.0 | 16.0 | 4.5 | --- |
| Swift's Bone Meal and Blood Fertilizer | 6935 | 3.7 | --- | --- | --- | 23.0 |
| Swift's Ground Steamed Bone Fertilizer | 6936 | 1.6 | --- | --- | --- | 20.0 |
| Swift's Ground Beef Bone Fertilizer | 6937 | 2.0 | --- | --- | --- | 27.0 |
| Swift's Wheat and Rye Special | 6981 | 1.6 | --- | 10.0 | 1.0 | --- |
| Swift's 1-10-1 Brand | 7007 | 0.8 | 1.0 | 10.0 | 0.5 | --- |
| Swift's Special Bone Meal Fertilizer | 7008 | 0.8 | --- | --- | --- | 29.0 |
| Swift's 2-10-1 Fertilizer | 7049 | 1.6 | 1.0 | 10.0 | 1.0 | --- |
| Swift's 1-10-0 Fertilizer | 7050 | 0.8 | --- | 10.0 | 0.5 | --- |
| Swift's 2-10-0 Fertilizer | 7051 | 1.6 | --- | 10.0 | 1.0 | --- |
| Swift's 3-8-0 Fertilizer | 7052 | 2.4 | --- | 8.0 | 1.0 | --- |
| Swift's 1-8-5 Fertilizer | 7095 | 0.8 | 5.0 | 8.0 | 0.5 | --- |
| Tennessee Chemical Company, Louisville, Ky. | | | | | | |
| Ox Fine Raw Bone Meal | 5314 | 2.4 | --- | --- | --- | 24.0 |
| Ox Special Grain Grower | 5717 | 0.4 | 3.0 | 8.0 | 0.5 | --- |
| Ox Dissolved Bone Phosphate | 5992 | --- | --- | 14.0 | 0.5 | --- |
| Ox Sixteen Percent | 5993 | --- | --- | 16.0 | 0.5 | --- |
| Ox Bone Phosphate & Potash | 5994 | 0.4 | 1.0 | 11.0 | 0.5 | --- |
| Ox Ammoniated Potash Mixture | 5995 | 0.2 | 2.0 | 12.0 | 0.5 | --- |
| Ox Slaughter House Bone & Phosphate | 5996 | 1.6 | 2.0 | 8.0 | 0.5 | --- |
| Ox Ammoniated Bone Phosphate | 5997 | 1.6 | 2.0 | 10.0 | 0.5 | --- |
| Ox Special Truck Grower | 5999 | 1.6 | 3.0 | 10.0 | 0.5 | --- |
| Special Grain Grower Formula | 6254 | 0.4 | 2.0 | 8.0 | 0.5 | --- |
| Ox Special Slaughter House Bone Phosphate | 6406 | 1.6 | 1.0 | 8.0 | 0.5 | --- |
| Ox Grain Grower Special | 6407 | 0.4 | 1.0 | 8.0 | 0.5 | --- |
| Ox Ammoniated Phosphate | 6408 | 1.6 | --- | 10.0 | 0.5 | --- |
| Ox Standard Raw Bone | 6995 | 3.7 | --- | --- | --- | 22.0 |
| Ox Harvester | 7107 | 0.8 | --- | 12.0 | 0.5 | --- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Tennessee Coal, Iron & Railroad Company, Birmingham, Ala. | | | | | | |
| Duplex Basic Phosphate | 7143 | ---- | ---- | ---- | ---- | 18.0 |
| United Chemical & Organic Products Company, The, Chicago, Ill. | | | | | | |
| Calumet 14% Acid Phosphate | 6996 | ---- | ---- | 14.0 | 1.0 | ---- |
| Calumet Special Pure Bone Meal | 6997 | 0.8 | ---- | ---- | ---- | 29.7 |
| Calumet Pure Raw Bone Meal | 6998 | 3.7 | ---- | ---- | ---- | 20.0 |
| Calumet Bone and Phosphate Mixture | 6999 | 0.4 | ---- | 15.0 | 8.0 | ---- |
| Calumet Ammoniated Bone Phosphate | 7000 | 0.6 | ---- | 15.0 | 1.0 | ---- |
| Calumet Hummer Grain Grower | 7001 | 0.8 | 0.5 | 10.0 | 1.0 | ---- |
| Calumet Corn & Wheat Special | 7029 | 0.8 | ---- | 12.0 | 1.0 | ---- |
| Calumet Bone Phosphate & Potash Mixture | 7030 | 0.4 | 1.0 | 10.0 | 1.0 | ---- |
| Calumet Special Crop Grower | 7031 | 0.4 | ---- | 12.0 | 1.0 | ---- |
| Calumet Corn & Tobacco Grower | 7032 | 0.8 | ---- | 10.0 | 1.0 | ---- |
| Calumet Onion & Truck Grower | 7033 | 0.4 | 3.0 | 8.0 | 1.0 | ---- |
| Calumet Extra Ammoniated Bone Meal | 7034 | 2.0 | ---- | ---- | ---- | 28.0 |
| Calumet Brand Otto Voyles Special | 7035 | 0.6 | ---- | 8.0 | 1.0 | ---- |
| Calumet Pure Bone Meal | 7036 | 2.4 | ---- | ---- | ---- | 25.0 |
| Calumet Brand Otto Voyles Special with Potash | 7094 | 0.6 | 0.5 | 8.5 | 1.0 | ---- |
| Calumet Special Onion & Truck Grower | 7126 | 0.8 | 3.0 | 8.0 | 1.0 | ---- |
| Calumet Indiana Tobacco Fertilizer | 7127 | 0.6 | 0.5 | 8.5 | 1.0 | ---- |
| Virginia-Carolina Chemical Company, Cincinnati Division, Cincinnati, O. | | | | | | |
| V-C Complete Fertilizer | 5181 | 1.6 | 2.0 | 8.0 | ---- | ---- |
| V-C Champion Corn & Wheat Grower | 5221 | 0.8 | 2.0 | 8.0 | ---- | ---- |
| V-C 20% Acid Phosphate | 5051 | ---- | ---- | 20.0 | ---- | ---- |
| V-C 16% Acid Phosphate | 6133 | ---- | ---- | 16.0 | ---- | ---- |
| V-C Prolife Grain Grower | 6221 | ---- | 2.0 | 12.0 | 1.5 | ---- |
| V-C Sure Grain Producer | 6497 | 0.8 | ---- | 13.0 | 1.5 | ---- |
| V-C Rescue Fertilizer | 6498 | 1.6 | ---- | 11.0 | 1.5 | ---- |
| V-C Complete Manure | 6501 | 0.8 | 1.0 | 8.0 | 1.5 | ---- |
| V-C Richumus Fertilizer | 6716 | 0.4 | ---- | 12.0 | 1.5 | ---- |
| V-C Red Cross 14% | 6846 | ---- | ---- | 14.0 | 1.5 | ---- |
| V-C Farmers' Friend | 6847 | 0.8 | 3.0 | 8.0 | 1.5 | ---- |
| V-C Bone Meal and Phosphate | 6848 | 0.8 | ---- | 10.0 | 12.0 | ---- |
| V-C Old Hickory | 7108 | 0.8 | 5.0 | 8.0 | 1.5 | ---- |
| Wachtel Rendering Plant, John, Indianapolis, Ind. | | | | | | |
| Wachtels Fertilizer | 5004 | 2.5 | ---- | ---- | ---- | 16.0 |
| Weidman, Augustus, Hagerstown, Ind. | | | | | | |
| An Acid Phosphate | 4474 | ---- | ---- | 14.0 | ---- | ---- |
| "One-Twelve" | 6225 | 1.0 | ---- | 12.0 | 1.0 | ---- |
| Bone and Acid Phosphate | 6743 | 1.5 | ---- | 9.0 | 9.0 | ---- |
| Western Fertilizer Works, Indianapolis, Ind. | | | | | | |
| Wheat and Corn Special | 3397 | 0.8 | 1.0 | 8.0 | 0.5 | ---- |
| Complete Fertilizer | 3398 | 0.4 | 1.0 | 7.0 | 0.5 | ---- |
| Acid Phosphate | 3400 | ---- | ---- | 12.0 | 0.5 | ---- |
| Bone Meal | 3401 | 1.7 | ---- | ---- | ---- | 20.0 |
| Garden Special | 5760 | 1.6 | 1.0 | 10.0 | ---- | ---- |
| Ammoniated Mixture | 5768 | 1.6 | ---- | 12.0 | ---- | ---- |
| Available Plant Food | 6227 | 1.2 | ---- | 10.0 | ---- | ---- |
| 16% High Grade Phosphate | 6262 | ---- | ---- | 16.0 | ---- | ---- |
| Corn King | 6263 | 0.8 | 0.5 | 12.0 | ---- | ---- |
| Special Spring Fertilizer | 6264 | 0.4 | 0.5 | 13.0 | ---- | ---- |
| 14% Acid Phosphate | 6365 | ---- | ---- | 14.0 | ---- | ---- |
| Special Wheat Fertilizer | 6631 | 0.8 | 0.5 | 12.0 | ---- | ---- |
| Special Fall Fertilizer | 6692 | 0.4 | 0.5 | 13.0 | ---- | ---- |
| Special Wheat Grower | 6970 | 0.8 | ---- | 10.0 | 1.0 | ---- |
| Tankage and Phosphate Special | 6987 | 0.4 | ---- | 12.0 | 0.5 | ---- |
| Ammoniated Phosphate | 7134 | 0.4 | ---- | 10.0 | ---- | ---- |
| Wheat & Clover | 7145 | 0.5 | 0.5 | 11.0 | ---- | ---- |

TABLE VIII.—Brands Certified by Manufacturers as Being on Sale in 1918 (continued)

| Label | Official No. | Guaranteed by manufacturers to contain not less than | | | | |
|---|--------------|--|---|---|--|--|
| | | Nitrogen, N, per cent. | Potash, K ₂ O, soluble in water, per cent. | Soluble and reverted phosphoric acid, P ₂ O ₅ , per cent. | Insoluble phosphoric acid, P ₂ O ₅ , per cent. | Total phosphoric acid, P ₂ O ₅ , per cent. |
| Woodward & Dickerson, Philadelphia, Pa. | | | | | | |
| Acid Phosphate ----- | 6131 | ---- | ---- | 14.0 | ---- | ---- |
| Nitrate of Soda ----- | 6132 | 14.8 | ---- | ---- | ---- | ---- |
| Worm & Company, Indianapolis, Ind. | | | | | | |
| Eureka Garden Fertilizer ----- | 6731 | 6.0 | 0.3 | ---- | ---- | 8.0 |
| Wuichet Fertilizer Company, The, Dayton, Ohio | | | | | | |
| 16% Acid Phosphate ----- | 6243 | ---- | ---- | 16.0 | 1.0 | ---- |
| E. E. Ruby ----- | 7119 | 0.4 | ---- | 11.0 | 1.0 | ---- |
| Superior Bone ----- | 7120 | 3.0 | ---- | ---- | ---- | 20.0 |
| E. E. Ammonia Special ----- | 7121 | 0.8 | ---- | 10.0 | 1.0 | ---- |
| E. E. Raw Bone & Phosphate ----- | 7122 | 1.5 | ---- | 8.0 | 6.0 | ---- |
| E. E. Spot Cash ----- | 7123 | 0.8 | 1.0 | 8.0 | 1.0 | ---- |

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 HOWARD W. GREGORY, B. S.....
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 GEORGE SPITZER, Ph. G., B. S.....
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 HARRY M. WEETER, M. S.....
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 MARTIN L. FISHER, M. S.....
 Assistant Chief in Soils and Crops
 SAMUEL D. CONNER, M. S.....
 Associate Chemist in Soils and Crops
 CLINTON O. CROMER, B. S.....Associate in Crops
 SADIOCE C. JONES, M. S.....Associate in Soils
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 REX A. WHITING, D. V. M., Associate in Animal Pathology
 CARL H. CLINK, B. S., Ass't in Serum Production
 LEO P. DOYLE, B. S., Ass't in Animal Pathology
 LESLIE R. GEORGE, B. S., Assistant in Animal Pathology
 FRED L. WALLEY, D. V. M., Ass't Veterinarian

DETAILED BY U. S. DEPARTMENT OF AGRICULTURE

CEREAL AND FORAGE CROP INSECT INVESTIGATIONS
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³ Died August 31, 1917

COMMERCIAL FEEDS REGISTERED FOR SALE IN INDIANA, MAY 1, 1918

E. G. PROULX

J. H. ROOP H. J. NIMITZ MARY J. MINTON P. B. CURTIS O. S. ROBERTS

The necessity of keeping more live stock on the farms of the country has created an increased demand for feeding stuffs.

The conditions resulting from the frosted corn crop, the many changes in the milling of flour, the lack of sufficient transportation, the direct haul and required full car loads, have compelled feeders to seek many substitute feeds from unfamiliar sources.

The State Chemist, realizing the needs of the feeders of Indiana, has prepared the included registration list of all brands of commercial feeding stuffs certified by manufacturers as being on sale in the State in 1918. This list formerly appeared as Table VII in the annual commercial feed bulletin of the Experiment Station, but is issued thus in advance of the usual time to give the feeders of Indiana all information possible in their selection of substitute feeds for use during the current season.

The failure of any manufacturer to appear in this certified list does not prevent a registered brand being placed on sale, but merely indicates that no reply to the annual letter of inquiry concerning contemplated registrations for 1918, has been received from the manufacturer by the State Chemist.

Consumers are earnestly requested to utilize this bulletin as a supplement to Bulletin No. 209, "Commercial Feeding Stuffs." Having decided on the brands of feeds desired in the registration table, the latest annual bulletin in which is given the analyses of these same brands, from samples collected and examined by deputies appointed by the State Chemist, may be consulted.

Cooperate by ordering full carloads by shortest direct haul.

TO AGENTS, DEALERS, DISTRIBUTORS AND CONSUMERS.—In accordance with the provisions of the law governing the registration and sale of concentrated commercial feeding stuffs, all brands of feeding stuffs offered for sale in Indiana are certified by the manufacturers before a notary public or justice of the peace, to contain the minimum guarantee of crude fat and crude protein, the maximum guarantee of crude fiber and the common names of all materials used in manufacturing the feed.

These certificates properly made out and attested are retained on file at the Experiment Station and State Chemist's labels are furnished the manufacturer corresponding to his sworn statement.

Agents and consumers should note when purchasing feed that the guarantee on the State Chemist's label is the guarantee *of the manufacturer and not of the State Chemist*, whose duty it is to make certain that manufacturers maintain their guarantees.

LABELS.—The only label recognized as legal under the law is that bearing the fac simile signature of the State Chemist or Acting State Chemist.

Do not accept, offer or expose for sale, sell, deliver or distribute any package or any quantity of commercial feeding stuff which does not have attached or which is not accompanied by one such label for each 100 pounds or fraction.

FRACTIONAL SALES.—All sales of 1, 2, 5, 10, 15, etc., pounds must be accompanied by the State Chemist's label even though the sale is made from a larger labeled package or container.

UNLABELED SHIPMENTS.—Do not accept shipments with State Chemist's labels unattached or sent separately by mail unless privilege of examining shipment before acceptance is specified in bill of lading. Investigation by the State Chemist's Department indicates that a few brokers are using this method to sell and invoice one product and ship another. This seems especially prevalent in the brokerage of mill by-products where in a number of cases, pure wheat bran has been invoiced and wheat bran and screenings furnished. Stipulate that the State Chemist's labels are to be attached to each and every package before shipment and if any good reason exists for not attaching, that examination of shipment must be permitted before acceptance. In some cases, which however, are few, good reasons may exist for the non-attaching of the State Chemist's labels but no manufacturer or broker who ships what he sells and fulfills his contracts will object to any reasonable examination of such shipments.

PURCHASING FEEDS.—Do not contract for feeding stuffs on the basis of private label guarantees or advertising matter, but on the official legal guarantee, and include the registration number in contract. When shipments are received, examine the labels attached to insure that they are the labels and feed contracted for. If labels are not in accord with contract, refuse shipment until a satisfactory explanation is furnished for the discrepancy. Communicating with the State Chemist regarding such shipments, by telephone or telegraph, will undoubtedly be to your advantage both from the standpoint of time and money.

SHORT WEIGHT SHIPMENTS.—The law requires that the net weight of the packages be guaranteed and maintained. If short weight shipments are suspected, weigh not less than 20 packages on a scale previously tested and balanced and if a shortage of one pound or more per 100 is found, do not remove the balance of the shipment from the car, but notify the State Chemist so that an inspector may be sent to make an official inspection.

SAMPLES.—If an inspection is desired, *do not forward samples*, but write to the State Chemist, giving the number on the official label, name of the feeding stuff, name of manufacturer, amount on hand and special reason, if any, for desiring the inspection. If the amount present is sufficient to give a representative sample, and a large number of samples of the same brand have not already been secured, an inspector will be sent to take an official sample. If you are in doubt regarding any manufacturer or feeding stuff, write for information. *The State Chemist is always ready to serve and advise.*

FREIGHT BILLS AND INVOICES.—Retain freight bills and invoices on all shipments, especially interstate, so that the information necessary to trace the shipment to the original consigner may be available. This infor-

mation is essential for cooperative work with the United States Department of Agriculture.

REFUNDS.—Attention is called to the fact that the payment of a refund has absolutely no bearing on the action the State Chemist's Department may take under the law for violation of its provisions. If refund for deficiency is received, the same should be distributed to the actual purchasers of the feed, on the basis of amount purchased and price paid. Receipts showing the refund paid and date of payment should be secured from each one to whom refund is paid and filed with the State Chemist. While the payment of a refund does not meet the requirements of the law, in many cases it shows the good intentions of the manufacturer.

When inspection results are reported, with the information that feeding stuff in your possession does not meet the requirements of the law, withdraw it from sale and notify the State Chemist of the amount and date of withdrawal. Failure to accept such advice will necessitate a report to the prosecutor of wilful violation.

Full text of the law and ruling will be furnished on request.

THE STATE CHEMIST'S LABEL

The official label, a reproduction of which follows, is always printed, contains all the information required by law, and the fac-simile signature of the State Chemist. *It is absolutely necessary and no other label should be accepted.*

○

\$50 fine for using this tag second time

No. 9

Net Weight **100** Pounds

JOHN DOE & CO.,
of LaFayette, Ind.,
 Guarantee this
DOE'S MIXED FEED
 to contain not less than
 3.5 per cent. of crude fat,
 14.0 per cent. of crude protein,
 not more than
 10.0 per cent. of crude fiber,
 and to be compounded from the
 following ingredients:
Wheat Bran, Middlings, Ground Wheat
Screenings and Corn Bran

E. L. Proulx

Acting State Chemist,
 Purdue University Agricultural
 Experiment Station LaFayette, Ind.

Not good for more than **100** pounds.

The consumer should bear in mind that the accepted guarantee does not of necessity imply quality, and that it is simply intended as a guide to the purchaser. Inferior goods may be legally sold if correctly guaranteed. Close attention should be given to the list of ingredients contained in the feed, which is printed on the labels.

CONDIMENTAL FEEDS.—Under the present rulings of the State Chemist, this term is defined to include—any mixture having as a base, filler or diluent, any material of feeding value such as wheat bran, middlings, screenings, flaxseed meal, linseed meal, etc., or any of the materials used as adulterants for feeding stuffs, such as corn cob meal, oat hulls, peanut hulls, etc., together with condiments, herbs or drugs, one or all, without regard to names or claims under which they are sold. All preparations sold as stock or poultry foods or feeds, conditioners, relishes, tonics, regulators, powders, egg producers, etc., if compounded as above, as well as all preparations sold under the name of food or feed or a similar term or with claims for nutritive properties either on package or advertising matter, come under the law and must be registered and labeled when offered or exposed for sale, sold or distributed in Indiana.

Legal opinions have been received that the interpretation of the term condimental feed as used in the law can properly be broadened to include all materials used as food adjuncts for animals, and the issuing of a ruling to this effect is under consideration.

In general, these preparations are composed of some ordinary feeding stuff or feeding stuff adulterant as a base or carrier, together with some common cathartic, generally Glauber's salts or sometimes Epsom salts, and appetizers, gentian, fenugreek, ginger, common salt, anise, with small amounts of worm seed, poke root, copperas, sulphur, etc.

In many cases after the passage of the Feeding Stuffs Control law, names, claims and methods of compounding were changed and the feeding stuff base omitted, salt, Glauber's salts, and similar cheap materials being used in larger amounts and *some of the largest sellers on the market today contain 90 per cent. and over of common salt.* Most of the latter are not registered under the law.

As stated in previous bulletins, the large majority of properly conducted experiments fails to show profitable results from the use of these preparations but those who wish to use them are requested, both as co-operating with the State Chemist and for their own protection, to purchase those condimental brands which are registered, and thus obtain the protection which the law affords.

Call on the State Chemist and ask to have your feed inspected if you have any reason to believe the feed in question is injurious to the health of animals.

NEW FEEDS ON SALE

***BARLEY MIXED FEED WITH GROUND BARLEY SCREENINGS WITH INGREDIENTS STATED AS BARLEY HULLS, BARLEY BRAN, BARLEY MIDDLINGS AND GROUND BARLEY SCREENINGS.**—In the milling of barley flour for human consumption, in the mills inspected by representatives of the State Chemist's Department, the barley screenings are removed at the start of the process, and the cleaned barley is then run through the ordinary wheat flour mill or rye flour mill and the barley flour taken out. The product

remaining, namely barley hulls, bran and middlings is mixed with the ground barley screenings originally taken out; the resultant product is sold in Indiana with the brand name and with ingredients given as barley hulls, barley bran, barley middlings and ground barley screenings.

**BARLEY MILL FEED WITH GROUND BARLEY SCREENINGS.*—This term is similar to barley mixed feed with ground barley screenings and is optional with the manufacturer.

In general, materials of this nature are sold in Indiana under guarantees of 2 to 3 per cent. of crude fat; 8 to 10 per cent. of crude protein, and not to contain over 18 to 25 per cent. of crude fiber.

VELVET BEAN PRODUCTS

**Velvet Bean Feed* is the dried ground velvet beans and pods.

**Velvet Bean Meal* is the dried ground velvet bean and cannot contain the ground pods.

Several brands of velvet bean feed are now registered with the State Chemist's Department and appear in the list on page 86. In general, this product is guaranteed to contain 4 per cent. crude fat, 16 to 18 per cent. crude protein and 15 to 20 per cent. crude fiber.

Velvet bean meal is not offered for sale in Indiana at this time.

**Corn Mill Feed* is all of the mill run by-product produced in the manufacture of corn meal or corn flour from cleaned shelled corn and consists of corn bran, corn germ and some meal.

**Delinted Cottonseed Hulls* is the product resulting from the entire removal of all particles of lint from the outer portion of the cottonseed hulls. When added to cottonseed meal or mixed with other feeds, the ground or unground delinted cottonseed hulls, must be listed as an ingredient.

Corn cob meal, peanut hull meal and delinted cottonseed hulls have a very high percentage of crude fiber and contain somewhat less digestible nutrients than oat straw, and only a very great scarcity of home grown roughage can ever justify their purchase in Indiana.

Hominy feed now on the Indiana market is of three types as follows:

1. Hominy feed with the mill run bran, germ and soft meal.
2. Hominy feed with much of the germ removed.
3. Hominy feed with part of the oil extracted.

PEANUT PRODUCTS

Definitions adopted by the Association of Feed Control Officials of the United States and accepted by the State Chemist.—

Peanut Oil Cake is the residue after the extraction of part of the oil by pressure or solvents from peanut kernels.

Peanut Oil Meal is the ground residue after the extraction of part of the oil from peanut kernels.

Unhulled Peanut Oil Feed is the ground residue obtained after extraction of part of the oil from whole peanuts, and the ingredients shall be designated as *Peanut Meal and Hulls*.

When definitions are not available from the Association of Feed Control Officials of the United States, the materials are defined in accordance with the best information obtainable by the State Chemist. Definitions not from the A. F. C. O. are marked with an asterisk ().

Peanut oil cake and peanut oil meal are not registered with the State Chemist's Department as being on sale in Indiana, although successfully used as a feed in southern states.

Unhulled peanut oil feeds as registered with the State Chemist, page 87, are guaranteed to contain 5 to 7 per cent. of crude fat; 30 to 32 per cent. of crude protein; 14 to 25 per cent. of crude fiber.

ATTENTION—CONSUMERS, AGENTS AND DEALERS

In deciding on companies to represent and from whom to purchase, the details of inspection in Table III, page 48, Bulletin No. 209, should be closely studied; companies who ship feed properly labeled and up to guarantee should be patronized and represented; when for any reason refund is received, the State Chemist should be promptly notified. Dealers who have sold any deficient feed and received refund, must file receipts with the State Chemist showing payment of the proper amount to each customer.* When car lots or appreciable amounts of feed are received, waybills and correspondence should be kept and the State Chemist notified of arrival and probable time of distribution. No excuse will be accepted from agents or dealers who persist in representing companies who ship deficient, adulterated or unlabeled feed.

For the convenience of consumers, the brands of feeding stuffs appearing in this bulletin have been divided into 29 classes, covering all feeds registered and offered for sale in Indiana. These 29 classes appear in the index, page 161, and by using this index, one should experience no difficulty in finding all desired brands of each class of feed collected together.

The facts are presented in the annual bulletins, and it is to the best interests of the purchasers and consumers of feeding stuff in Indiana, that they cooperate with the State Chemist and patronize only those firms which meet the requirements of the law in every particular.

SUGGESTIONS TO PURCHASERS

Purchase feed for cash in full carload shipments through firms which can deliver your order by a direct haul. You not only secure cheaper feed but you help win the war by conserving freight cars, labor and fuel. Having decided on the type of feed desired, consult registrations of this class of feed found in the registration list. Compare the guaranteed analysis with the actual found analysis given in Bulletin No. 209 and secure quotations from several of the manufacturers who have in the past maintained their guarantees. They should, owing to saving in freight, be in a position to quote better prices.

Consult the State Chemist if uncertain as to the standing of manufacturers with respect to the maintenance of their guarantees. He is always ready to advise and aid you in securing desired brands of feeding stuffs.

With the exception of wheat mill feeds, distillers' and brewers' grains, no shortage of animal food exists. Agents and consumers however, can have no assurance that transportation difficulties in the winter months of 1918 and 1919 will be any improvement over similar months of 1917 and 1918 and a reasonable supply of feed should be kept in stock.

NEW RULINGS ON ANIMAL FEEDING STUFF

Considerable uncertainty exists regarding the prices of mill feeds as controlled by the United States Food Administration. Many feeders expected to purchase wheat bran for \$27.87 per ton, and felt that they were being discriminated against by the wholesalers and jobbers when quoted \$38.00 to \$41.00 per ton.

The enforcement of Rule 19 of the United States Food Administration in Indiana is the duty of the State Food Administrator, Harry Everett Barnard, Ph. D., State House, Indianapolis. Dr. Barnard has deputy food administrators in the different counties of the State, and complaints of overcharge should be made to Dr. Barnard or his deputies in the several counties.

The principal ruling affecting the prices of mill feeds, promulgated December 18, 1917, is known as Rule 19.

"Rule 19. No Licensee engaged in the business of milling flour and feed from wheat shall after December 25, 1917, sell wheat mill feed at any price in excess of the following prices," Chicago district.

"Bulk price per ton of 2,000 pounds at mill in carloads in no case shall exceed 38 per cent of the average cost to such mill of one ton of wheat at the mill, which cost of wheat shall be the average cost as shown by the previous month's records of said mill and shall include the 1 per cent Administration Fee paid by the mill on all wheat ground.

Differentials (Maximum Prices, Bulk, Mill).

Basis Bran.

| | |
|-------------------------------------|--|
| <i>Shorts or standard middlings</i> | \$ 2.00 per ton of 2,000 lbs. over basis |
| <i>Mixed feeds</i> | 4.00 per ton of 2,000 lbs. over basis |
| <i>Flour middlings</i> | 9.00 per ton of 2,000 lbs. over basis |
| <i>Red dog</i> | 15.00 per ton of 2,000 lbs. over basis |

"The above percentages on prices are subject to revision from time to time by the United States Food Administrator, but no revision will be made without thirty days' notice.

"The price f. o. b., bulk, mill, in carload lots shall be on the basis of cash or draft attached to bill of lading and all feed sold by the Licensee shall be invoiced at such price. There shall also appear on the invoice, in addition to such price, f. o. b. mill, the price of the sacks and items of freight and interest, if any, when goods are sold on extended terms or credit, and other charges, but the Licensee, for convenience in selling, may quote a delivered price in sacks. This rule shall not affect existing contracts.

"This rule aims to establish a relation between the price of mill feeds and the price of wheat. It is made necessary by the unusually high price of coarse grains, which has caused unprecedented demand for mill feeds.

"In view of possible larger movement of the coarse grains, which would naturally result in a decrease in the demand for and price of mill feed, which in turn would tend to advance the price of flour, it is necessary at this time to adjust the price of mill feed rather than trust to a rigid and unjust arrangement at a later date."

The bulk price of wheat bran at the mills under this ruling would be determined as follows:

With wheat, 60 pounds per bushel, 33.33 bushels to one ton, under United States fixed price of \$2.20 per bushel as a maximum for No. 1 grade, would be \$73.33 per ton, 38 per cent. of this cost to the mill is the bulk price of wheat bran carload lots, or \$27.86. (Some large mills now quote prices \$0.21 per ton under the maximum price.) This price also refers to a carload of 33 tons, being the preferred load at the present time. If we assume the bran is purchased from a mill in Minneapolis, Minn., by a large wholesale and retail firm in Indiana, the invoice on the 33 ton car would be:

| | | |
|---|-------------|------------|
| Price in bulk f. o. b. mill at..... | \$27.87 | \$ 919.71 |
| Sacks, at | 4.86 | 160.38 |
| Freight to Indiana on 66,495 pounds, at | 0.163 cwt. | 108.34 |
| War tax on freight (\$108.34) at | 3 per cent. | 3.25 |
| | | <hr/> |
| Making price delivered (per ton \$36.11) total price..... | | \$1,191.68 |
| If bought through broker \$0.25 per ton commission | | 8.25 |
| | | <hr/> |
| Total cost (per ton \$36.36)..... | | \$1,199.93 |

If bought through a commission house \$0.50 per ton

| | |
|------------------------------|------------|
| Total cost (per ton \$36.61) | |
| Total cost of car | \$1,191.68 |
| Added (commission) | 16.50 |
| <hr/> | |

Total cost of 33 ton car\$1,208.18 (\$36.61 per ton)

The Indiana wholesaler would sell this bran in ton lots direct to consumers at a \$3.00 profit or approximately \$39.61. He would make an additional charge of \$1.00 for retailing less than ton lots. This same wholesaler might sell at a \$2.00 profit per ton to a smaller jobber or retailer, who in turn would deliver to a consumer at \$40.00 to \$41.00 per ton. All sales are supposedly cash equivalent; higher prices would undoubtedly prevail if credit were given. Two additional factors entering into the ton cost of bran, is the saving in freight rates if bran is purchased from Indiana mills, and sacks, which in good condition can be returned. These two factors will lessen the cost fully \$6.00 per ton.

To ascertain the price of other mill feeds, it is necessary to add to the ton cost of bran, \$2.00 per ton for shorts or standard middlings, \$4.00 per ton for mixed feed, \$9.00 per ton for flour middlings, and \$15.00 per ton for red dog. The two latter classes of feeds, however, are now principally used for human consumption.

Owing to the increased production of flour per bushel of wheat, due to the new milling under the direction of the food administration and to the actual decreased milling of wheat, the supplies of wheat bran and shorts in Indiana have been seriously decreased. Wheat bran and shorts are not offered freely in Indiana at the present time, and feeders must use substitute feeds wherever possible.

Brands Certified by Manufacturers as Being on Sale May 1, 1918

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| BRAN, MIDDINGS, SHORTS, CHOP FEEDS, CORN FEED MEAL AND OTHER MILL BY-PRODUCTS | | | | | |
| Acme-Evans Company, Indianapolis, Ind. Acme Feed ----- | 5588 | 4.0 | 16.0 | 9.0 | Wheat bran, wheat middlings, not exceeding mill's run of ground cleaned wheat screenings |
| Acme Middlings and Screenings ----- | 5590 | 4.5 | 16.5 | 8.0 | Wheat middlings, not exceeding mill's run of ground cleaned wheat screenings |
| Homlik ----- | 6876 | 3.0 | 8.5 | 4.0 | Reground corn feed meal |
| Acme Bran and Screenings ----- | 7159 | 3.5 | 15.5 | 10.0 | Wheat bran, not exceeding mill's run of ground cleaned wheat screenings |
| Capitol Red Dog Flour ----- | 7573 | 4.0 | 15.0 | 5.0 | Low grade wheat flour containing the finer particles of wheat bran |
| Acme Flour Middlings & Screenings----- | 7618 | 4.5 | 16.5 | 8.0 | Wheat flour, wheat middlings, not exceeding mill's run of ground cleaned wheat screenings |
| Acme Farm Feed ----- | 8439 | 5.0 | 12.0 | 7.0 | Corn, wheat bran, wheat middlings, hominy feed |
| Acme Barley Mill Feed with Ground Screenings | 9266 | 2.5 | 10.0 | 19.5 | Barley hulls, barley bran, barley mid- dlings, ground barley screenings |
| Acme Rye Mixed Feed with Ground Rye Screenings ----- | 9327 | 2.5 | 13.0 | 6.5 | Rye bran, rye middlings, not exceed- ing mill run of ground cleaned rye screenings |
| Acme Milling Company, The, Aurora, Ind. Middlings ----- | 968 | 3.9 | 14.2 | 6.6 | Wheat middlings |
| Chop Feed (Corn & Oats) ----- | 969 | 3.8 | 10.5 | 8.7 | Corn, oats |
| Bran & Middlings ----- | 970 | 3.9 | 14.2 | 8.2 | Wheat bran, middlings |
| Wheat Bran ----- | 971 | 3.7 | 14.1 | 10.1 | Wheat bran |
| Mxd Bran ----- | 2556 | 3.7 | 13.6 | 10.0 | Wheat bran, corn bran |
| Aiman, W. H., Pendleton, Ind. Wheat Bran ----- | 3811 | 3.5 | 14.0 | 10.5 | Wheat bran |
| Akin-Erskine Milling Company, Evansville, Ind. Standard Middlings or Shorts, Ground Wheat Screenings and Salt ----- | 6032 | 4.0 | 14.0 | 6.0 | Wheat shorts, ground wheat screen- ings, salt |
| Mixed Feed ----- | 6047 | 4.0 | 15.0 | 9.5 | Wheat bran, middlings, ground wheat screenings, salt |
| Winter Wheat Bran & Mill Run Wheat Screenings ----- | 7729 | 3.9 | 14.0 | 12.0 | Wheat bran, whole wheat screenings not exceeding mill run |
| Corn Feed Meal ----- | 8572 | 2.0 | 9.0 | 7.0 | Corn feed meal |
| Rye Mixed Feed, Ground Screenings and Salt. | 9176 | 3.0 | 14.5 | 11.0 | Rye bran, rye middlings, ground rye screenings, salt |
| Akron Milling Company, The, Akron, Ind. Wheat Middlings ----- | 2795 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Wheat Bran ----- | 3597 | 3.5 | 14.0 | 12.0 | Wheat bran |
| Albion Roller Mills, Albion, Ind. Winter Wheat Bran ----- | 8610 | 3.0 | 13.0 | 10.0 | Wheat bran |
| Winter Wheat Middlings ----- | 8611 | 3.0 | 13.0 | 7.0 | Wheat middlings |
| Allan, J. P., Farmersburg, Ind. J. P. Allans Mixed Feed ----- | 2892 | 4.0 | 9.5 | 12.0 | Wheat bran, hominy feed, oats |
| American Hominy Company, Indianapolis, Ind. Cracked Corn and Rolled Oats ----- | 6578 | 4.0 | 9.0 | 5.0 | Corn, rolled oats |
| Yellow Feed Meal ----- | 9228 | 3.5 | 8.5 | 5.0 | Corn feed meal |
| Rye Middlings ----- | 9382 | 3.5 | 16.0 | 7.0 | Rye middlings |
| American Milling Company, Peoria, Ill. Amco Corn Feed Meal ----- | 8095 | 2.5 | 8.0 | 5.0 | Corn feed meal |
| Amo Mill & Elevator Company, Amo, Ind. Amo Middlings ----- | 4442 | 2.8 | 13.0 | 7.0 | Wheat middlings |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Amo Mill & Elevator Company, Amo, Ind. Amo Feed | 4443 | 3.0 | 13.0 | 12.0 | Wheat bran, ground wheat screenings, corn bran |
| Rye Middlings and Screenings | 7947 | 2.7 | 13.5 | 12.0 | Rye middlings, ground rye screenings |
| Middlings and Screenings | 8118 | 2.8 | 13.0 | 7.0 | Wheat middlings, ground wheat screenings |
| Anchor Milling Company, Rochester, Ind. Wheat Middlings | 3747 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Wheat Bran | 3909 | 3.0 | 14.0 | 10.0 | Wheat bran |
| Mixed Feed | 4214 | 3.0 | 12.0 | 11.5 | Wheat bran, ground wheat screenings, corn bran |
| Anchor Chop Feed | 8587 | 3.5 | 9.0 | 5.0 | Corn, oats, corn feed meal |
| Anderson, C., New Waverly, Ind. Wheat Middlings | 1821 | 4.0 | 14.0 | 8.0 | Wheat middlings |
| "A" Mixed Bran | 3782 | 3.2 | 12.0 | 13.0 | Wheat bran, corn bran |
| Anderson, G. H., Seymour, Ind. Corn Bran | 4837 | 3.0 | 7.0 | 15.0 | Corn bran |
| Corn Feed Meal | 5230 | 2.0 | 7.0 | 3.0 | Corn feed meal |
| Angola Flouring Mill, Angola, Ind. Angola Flouring Mills Middlings | 1097 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Angola Flouring Mills Wheat Bran | 1098 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Arady Farms Milling Company, Chicago, Ill. Wheat Middlings (With Screenings Not to Exceed Mill Run) | 8829 | 3.5 | 14.0 | 12.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Wheat Bran (With Screenings Not Exceeding Mill Run) | 8830 | 3.0 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Arkansas City Milling Company, The, Arkansas City, Kansas. Standard Wheat Shorts & Screenings | 8469 | 3.5 | 16.0 | 5.5 | Wheat shorts, ground wheat screenings not to exceed 8% |
| Wheat Bran & Screenings | 8470 | 3.5 | 14.0 | 10.0 | Wheat bran, ground wheat screenings not to exceed 8% |
| Mill Run Wheat Mixed Feed & Screenings | 8807 | 4.0 | 16.0 | 8.5 | Wheat bran, wheat shorts, ground wheat screenings not to exceed 8% |
| Ashbrook Company, The J. S., Mattoon, Ill. Royal Grain Feed | 5912 | 3.0 | 10.0 | 7.0 | Corn, rolled oats, rolled barley |
| Peerless Corn & Oats Chop | 7983 | 3.0 | 10.0 | 6.0 | Corn, oats |
| Diamond A. Feed Meal | 8209 | 3.0 | 10.0 | 6.0 | Feed meal from corn, kafir, milo and wheat |
| Wheat Bran with Ground Screenings | 8530 | 4.0 | 13.0 | 13.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings with Ground Screenings | 8531 | 4.0 | 14.0 | 11.0 | Wheat middlings, ground wheat screenings |
| Ashley-Hudson Milling & Grain Company, ¹ Ashley, Ind. Ashley-Hudson Wheat Bran | 3144 | 3.8 | 14.0 | 12.0 | Wheat bran |
| Ashley-Hudson Wheat Middlings | 3145 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Atkinson Milling Company, Minneapolis, Minn. Wheat Bran with Screenings | 8199 | 4.0 | 13.0 | 13.0 | Wheat bran, ground wheat screenings |
| Auburn Feed Store, Auburn, Ind. Chop Feed | 5004 | 3.2 | 8.5 | 7.0 | Corn, oats, corn feed meal |
| Augusta Milling Company, The, Augusta, Ind. Wheat Bran & Middlings Mixed | 3438 | 3.5 | 13.5 | 11.0 | Wheat bran, middlings |
| Aviston Milling Company, Aviston, Ill. Hobby Horse White Middlings, with Ground Screenings not exceeding Mill Run | 7383 | 5.0 | 14.5 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Amiko Pure Bran | 7384 | 5.0 | 15.0 | 11.0 | Wheat bran |
| Courtesy White Shipstuff, (Red Dog) | 7483 | 3.0 | 14.5 | 3.5 | Wheat middlings, reddog flour |

¹ Succeeded by Kirlin & Hammond

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Aviston Milling Company, Aviston, Ill. Hobby Horse Wheat Bran with Ground Screenings not exceeding Mill Run----- | 7503 | 3.5 | 14.5 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Bachman, Valentine, Indianapolis, Ind. Bachman's Cleaned Wheat Product ----- | 6950 | 3.7 | 16.0 | 10.0 | Wheat bran, middlings |
| Rye Mixed Feed & Ground Rye Screenings---- | 9231 | 2.7 | 14.0 | 8.0 | Rye bran, rye middlings, mill run ground rye screenings |
| Badenoch Company, J. J., Chicago, Ill. J. J. Badenoch Co's Wheat Bran with Ground Screenings not exceeding Mill Run----- | 6219 | 4.0 | 14.5 | 12.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| J. J. Badenoch Co's Wheat Standard Middlings with Ground Screenings not exceeding Mill Run ----- | 6220 | 5.0 | 15.0 | 9.5 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Corn Feed Meal ----- | 6989 | 1.2 | 7.0 | 3.5 | Corn feed meal |
| Wheat Flour Middlings ----- | 8638 | 4.0 | 15.0 | 7.0 | Wheat middlings |
| Corn Mill Feed ----- | 9354 | 4.0 | 3.5 | 12.5 | Corn bran, corn meal |
| Bailey & Thompson, Prairie Creek, Ind. Mixed Feed No. 1 ----- | 6952 | 3.0 | 12.5 | 10.0 | Wheat bran, shorts, ground wheat screenings, corn bran |
| Thompsons Wheat Shorts ----- | 7769 | 3.8 | 14.9 | 7.4 | Wheat shorts |
| Mixed Feed No. 2 ----- | 7770 | 3.0 | 12.0 | 10.0 | Wheat bran, ground wheat screenings, corn bran |
| Corn Feed Meal ----- | 7785 | 2.5 | 7.5 | 5.0 | Corn feed meal |
| Bainton Bros., Buchanan, Mich. Baintons Bran and Shorts ----- | 7026 | 3.5 | 14.0 | 10.0 | Wheat bran, shorts |
| Middlings ----- | 7128 | 2.5 | 12.0 | 2.0 | Wheat middlings |
| Baldwin, Jr., Dwight M., Minneapolis, Minn. Dwight Flour Mills Red Dog ----- | 3205 | 5.5 | 17.5 | 6.0 | Low grade wheat flour containing the finer particles of wheat bran |
| Baldwin Flour Mills Wheat Shorts & Screenings ----- | 5693 | 5.0 | 15.0 | 11.0 | Wheat shorts, ground wheat screenings not exceeding mill run |
| Baldwin Flour Mills Wheat Flour Midds and Screenings ----- | 5694 | 5.0 | 16.5 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Baldwin Flour Mills Wheat Bran and Screenings ----- | 5695 | 4.0 | 14.5 | 12.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Baldwin, J. Jay, Crown Point, Ind. "Baldwin Chop Feed" ----- | 8700 | 3.0 | 8.0 | 6.0 | Corn, oats, corn feed meal |
| Ballard & Ballard Company, Louisville, Ky. Ballard's Mixed Wheat Feed & Mill Run Screenings ----- | 8758 | 4.4 | 14.6 | 6.9 | Wheat bran, wheat middlings, cleaned and ground wheat screenings |
| Ballard's Bran ----- | 8759 | 4.1 | 14.5 | 9.6 | Wheat bran |
| Ballard's Kentucky Farm Feed ----- | 8760 | 4.4 | 15.0 | 6.4 | Wheat middlings, cleaned and ground wheat screenings |
| Ballard's Rye Mill Feed ----- | 9163 | 2.5 | 13.0 | 7.0 | Rye bran, rye middlings |
| Banner Roller Mills, The, Mooresville, Ind. Wheeler's Banner Mixed Feed ----- | 437 | 3.9 | 14.0 | 8.5 | Wheat bran, shorts, corn bran |
| Barlow, C. M., Kokomo, Ind. Wheat Middlings ----- | 5368 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Barlow's Chop Feed ----- | 5038 | 3.0 | 9.0 | 7.0 | Corn, oats, corn feed meal |
| Barry, Russell, Crandall, Ind. Mixed Feed ----- | 8421 | 3.0 | 13.0 | 10.0 | Wheat bran, corn bran, ground wheat screenings |
| Wheat Middlings ----- | 8422 | 3.0 | 13.0 | 10.0 | Wheat middlings |
| Bartle & Robbins, Muncie, Ind. Chop Feed ----- | 4890 | 3.5 | 8.6 | 12.0 | Corn, oats, corn feed meal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Bartlett Company, The J. E., Jackson, Mich. Wheat Bran with Screenings ----- | 6813 | 3.0 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Standard Wheat Middlings and Screenings---- | 6814 | 4.5 | 13.5 | 10.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| "Farmer Brand" Red Dog Flour ----- | 7211 | 4.0 | 15.0 | 3.7 | Low grade wheat flour containing the finer particles of wheat bran | |
| Farmer Brand Rye Middlings ----- | 7565 | 2.0 | 14.0 | 8.0 | Rye middlings | |
| Farmer Brand Flour Middlings with Screenings ----- | 7668 | 4.0 | 15.0 | 7.5 | Wheat middlings, ground wheat screenings not to exceed mill run | |
| Rye Midds and Screenings ----- | 8997 | 3.5 | 15.0 | 7.0 | Rye middlings, ground rye screenings not exceeding mill run | |
| Bartlett's Rye Middlings with Ground Screenings not Exceeding Mill Run ----- | 9341 | 3.0 | 14.5 | 8.0 | Rye middlings, ground rye screenings not exceeding mill run | |
| Bash & Company, C. E., Huntington, Ind. C. E. Bash & Co's Chop ----- | 1749 | 3.9 | 9.5 | 6.0 | Corn, oats | |
| Batchelor, Barlow & Batchelor, ² Sharpsville, Ind. Wheat Bran ----- | 4675 | 3.8 | 14.0 | 12.0 | Wheat bran | |
| Wheat Shorts ----- | 4676 | 3.7 | 14.0 | 7.0 | Wheat shorts | |
| Batchelor & Barlow, Sharpsville, Ind. B. & B. Chop ----- | 8389 | 3.5 | 9.0 | 6.0 | Corn, oats | |
| Batchelor, Barlow & Davis, Sharpsville, Ind. Corn Bran ² ----- | 4037 | 5.0 | 8.0 | 13.0 | Corn bran | |
| Batesville Flour Mills, Batesville, Ind. Mixed Feed ----- | 7804 | 3.2 | 12.8 | 10.0 | Wheat bran, ground wheat screenings | |
| Wheat Shorts ----- | 7805 | 3.0 | 13.1 | 8.0 | Wheat shorts | |
| Bauer Milling Company, Lanesville, Ind. Bauer's Jersey Bran ----- | 8955 | 4.2 | 15.5 | 9.0 | Wheat bran | |
| Bauer's Daisy Shorts ----- | 8956 | 5.0 | 14.5 | 7.0 | Wheat shorts | |
| Bay State Milling Company, Winona, Minn. Rye Middlings ----- | 8189 | 3.4 | 16.0 | 6.0 | Rye middlings | |
| "Winona" Fancy White Flour Middlings----- | 8190 | 4.5 | 16.0 | 2.5 | Wheat middlings | |
| "Winona" Fancy Mixed Wheat Feed & Wheat Screenings ----- | 8191 | 4.5 | 16.0 | 8.0 | Wheat bran, middlings, red dog flour, less than 6% ground wheat screenings | |
| Reddog Flour ----- | 8194 | 4.5 | 16.0 | 2.0 | Low grade wheat flour containing the finer particles of wheat bran | |
| "Winona" Wheat Middlings and Wheat Screenings ----- | 9001 | 5.0 | 16.5 | 8.3 | Wheat middlings, less than 8% ground wheat screenings | |
| "Winona" Coarse Wheat Bran ----- | 9002 | 3.5 | 15.0 | 12.0 | Wheat bran | |
| Beck, Delbert F., Burlington, Ind. Beck's Chop Feed ----- | 1209 | 3.9 | 9.5 | 6.0 | Corn, oats | |
| Belt Elevator & Feed Company, Indianapolis, Ind. Feed Meal ----- | 3322 | 3.7 | 8.5 | 7.0 | Corn feed meal | |
| Chop Feed ----- | 3777 | 3.5 | 9.0 | 7.0 | Corn, oats, corn feed meal | |
| Mixed Feed ----- | 3778 | 2.0 | 10.0 | 15.0 | Wheat, crushed wheat screenings | |
| Bender, Nicholas, Siberia, Ind. Mixed Feed ----- | 5507 | 3.5 | 13.5 | 10.0 | Wheat bran, wheat middlings, ground wheat screenings | |
| Benham Milling Company, The, Benham, Ind. Wheat Shorts ----- | 2948 | 3.5 | 13.5 | 7.0 | Wheat shorts | |
| Wheat Bran ----- | 4339 | 3.0 | 14.0 | 12.0 | Wheat bran | |

² Succeeded by Batchelor & Barlow

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Bergenroth Bros., Troy, Ind. Wheat Shorts and Screenings ----- | 2023 | 4.0 | 14.0 | 8.0 | Wheat shorts, ground wheat screenings |
| Bergenroths Wheat Bran & Screenings ----- | 2024 | 3.8 | 14.0 | 10.0 | Wheat bran, ground wheat screenings |
| Middlings ----- | 2025 | 4.0 | 15.0 | 6.0 | Wheat middlings |
| Mixed Feed ----- | 3441 | 4.0 | 14.0 | 11.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Mixed Bran & Screenings ----- | 3442 | 3.8 | 14.0 | 12.0 | Wheat bran, ground wheat screenings, corn bran |
| Corn Bran ----- | 3443 | 4.5 | 8.0 | 14.0 | Corn bran |
| Berlein Mills, Angola, R. F. D., Ind. Wheat Middlings ----- | 7515 | 3.0 | 12.0 | 10.0 | Wheat middlings |
| Wheat Bran ----- | 7738 | 3.0 | 14.0 | 10.0 | Wheat bran |
| Berne Milling Company, Berne, Ind. Berne Milling Co's Wheat & Corn Bran ----- | 1117 | 3.8 | 14.0 | 10.0 | Wheat bran, corn bran |
| Chop Feed ----- | 6673 | 2.8 | 8.7 | 8.0 | Corn, oats, barley, corn feed meal |
| Wheat Shorts ----- | 8018 | 2.3 | 13.0 | 7.0 | Wheat shorts |
| Bernet, Craft & Kauffman Milling Company, St. Louis, Mo. Mt. Carmel Bran & Screenings ----- | 5518 | 3.5 | 14.3 | 9.5 | Wheat bran, crushed wheat screenings not exceeding mill run |
| Mixed Feed ----- | 5519 | 4.0 | 14.5 | 9.5 | Wheat bran, middlings, crushed wheat screenings not exceeding mill run |
| Wheat Middlings and Screenings ----- | 5791 | 4.9 | 17.2 | 6.0 | Wheat middlings, crushed wheat screenings not exceeding mill run |
| "A" Wheat Middlings with Screenings ----- | 5806 | 3.0 | 15.0 | 8.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Berry Bros., Lynn, Ind. Daisy Chop ----- | 7044 | 3.5 | 9.0 | 6.0 | Corn, oats |
| Besser, W. T., Greencastle, Ind. Besser's Extra Mixed Feed ----- | 5170 | 3.5 | 15.4 | 12.0 | Wheat bran, middlings, corn bran, ground wheat screenings not exceeding mill run |
| Bickhart, Chris J., Rushville, Ind. Corn Bran ----- | 3790 | 4.0 | 7.0 | 14.5 | Corn bran |
| Bicknell Mill Company, Bicknell, Ind. Mixed Feed ----- | 7824 | 3.0 | 13.0 | 12.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| White Middlings ----- | 7825 | 3.0 | 12.0 | 9.5 | Wheat middlings |
| Bieker Bros. Company, Hammond, Ind. Chop Feed ----- | 3869 | 3.0 | 9.0 | 8.0 | Corn, oats, corn feed meal |
| Big Diamond Mills Company, Minneapolis, Minn. "Big Diamond Bran" and Screenings not exceeding Mill Run ----- | 9075 | 4.0 | 14.0 | 13.5 | Wheat bran, ground wheat screenings not exceeding mill run |
| "Big Diamond Standard Middlings" and Screenings not exceeding Mill Run ----- | 9076 | 5.0 | 15.5 | 10.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Bishop Elevator Company, Logansport, Ind. Chop Feed ----- | 554 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Blair Milling Company, The, Atchison, Kansas Bran and Screenings ----- | 7735 | 3.5 | 14.5 | 10.0 | Wheat bran, 1% ground wheat screenings |
| Soft Wheat Shorts ----- | 7736 | 3.5 | 16.0 | 5.5 | Wheat shorts |
| Blanton Milling Company, The, Indianapolis, Ind. Blanton's Middlings ----- | 47 | 3.6 | 16.1 | 5.3 | Wheat middlings |
| The Blanton Mixed Feed ----- | 3865 | 3.7 | 15.7 | 10.0 | Wheat bran, middlings, whole wheat screenings |
| Blanton's Pig Feed ----- | 7378 | 3.0 | 13.5 | 8.0 | Wheat middlings, low grade flour |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Bledsoe, Ernest E., Dugger, Ind. Deacons Horse Feed ----- | 2918 | 4.0 | 10.0 | 5.0 | Corn, oats |
| Blish Milling Company, Seymour, Ind. Blish's Red Dog Flour ----- | 6403 | 3.5 | 16.0 | 3.0 | Low grade wheat flour containing the finer particles of wheat bran |
| Bulls' Eye Mixed Feed ----- | 8176 | 4.5 | 16.0 | 9.0 | Wheat bran, middlings, ground wheat screenings |
| Bloomfield Mill & Elevator Company, Bloomfield, Ind. Mixed Mill Feed ----- | 4924 | 3.0 | 12.8 | 10.0 | Wheat bran, middlings, whole wheat screenings, corn bran |
| Corn Bran ----- | 8654 | 3.0 | 6.0 | 9.0 | Corn bran |
| Bloomington Milling Company, The, Bloomington, Ind. Mixed Feed ----- | 3602 | 3.0 | 13.0 | 8.0 | Wheat bran, middlings, whole wheat screenings, corn bran |
| Middlings & Screenings ----- | 8447 | 4.0 | 14.0 | 9.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Corn Feed Meal ----- | 9211 | 5.0 | 9.0 | 8.0 | Corn feed meal |
| Bluffton Milling Company, Bluffton, Ind. Wheat Bran ----- | 661 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Wheat Middlings ----- | 8017 | 2.5 | 13.0 | 7.0 | Wheat middlings |
| Bock, Leonard, Argos, Ind. ³ Wheat Middlings ----- | 548 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Chop Feed ----- | 549 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Wheat Bran ----- | 550 | 3.7 | 14.0 | 10.0 | Wheat bran |
| Mixed Feed ----- | 2843 | 3.7 | 14.0 | 12.0 | Wheat bran, ground wheat screenings, corn bran |
| Boldt & Son, Waynetown, Ind. Mix Mill Feed ----- | 4170 | 3.0 | 11.0 | 11.0 | Wheat bran, middlings, corn bran |
| Bolte & Sons, Ben, Ferdinand, Ind. Wheat Shorts ----- | 7276 | 4.0 | 14.5 | 8.0 | Wheat shorts |
| Wheat & Corn Bran and Ground Screenings.. | 8178 | 3.5 | 14.5 | 10.0 | Wheat bran, corn bran, ground wheat screenings |
| Boonville Milling Company, Boonville, Ind. Wheat Bran & Screenings ----- | 2842 | 3.7 | 14.0 | 10.0 | Wheat bran, ground wheat screenings |
| Corn Bran ----- | 3030 | 4.0 | 9.0 | 13.0 | Corn bran |
| Corn Feed Meal ----- | 6851 | 2.5 | 7.5 | 5.0 | Corn feed meal |
| Shorts & Feed Meal ----- | 7847 | 4.0 | 14.0 | 7.0 | Wheat shorts, corn feed meal |
| Boone Mixed Feed ----- | 8691 | 3.8 | 15.0 | 11.0 | Wheat bran, wheat shorts, corn bran, ground wheat screenings not to exceed mill run |
| Boston Milling Company, Eckerty, Ind. Bobbitt's Mixed Feed ----- | 3453 | 3.7 | 14.0 | 11.0 | Wheat bran, middlings, ground wheat screenings |
| Bowling Green Mills, The, Bowling Green, Ind. ⁴ Wheat Bran ----- | 3370 | 3.9 | 14.0 | 10.0 | Wheat bran |
| Bowling Green Milling Company, Bowling Green, Ind. Middlings ----- | 6206 | 3.0 | 13.0 | 6.0 | Wheat middlings |
| Mill Feed ----- | 6912 | 3.5 | 10.4 | 13.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Branch Grain & Seed Company, Martinsville, Ind. Horse Feed ----- | 272 | 3.5 | 9.0 | 6.0 | Corn, oats |
| Corn Feed Meal ----- | 3888 | 2.5 | 6.0 | 5.0 | Corn feed meal |
| Brattain & Son, Anderson, Ind. Corn & Oats Chop ----- | 4511 | 3.5 | 9.0 | 14.0 | Corn, oats |

³ Succeeded by J. A. Bock⁴ Succeeded by Bowling Green Milling Company

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Brewer, O. F., Freetown, Ind. Mixed Feed ----- | 5120 | 3.5 | 13.0 | 10.0 | Wheat bran, shorts, middlings, corn bran, ground wheat screenings |
| Freetown Farm Feed ----- | 9203 | 3.0 | 10.0 | 10.0 | Corn, oats, corn feed meal, corn bran, wheat bran, wheat middlings, ground wheat screenings |
| Brewer Company, Spencer, Ind. Mixed Feed ----- | 9233 | 3.0 | 13.0 | 11.0 | Wheat bran, wheat middlings, ground wheat screenings, corn bran |
| Brewer Milling Company, Gosport, Ind. Mixed Feed ----- | 3930 | 2.6 | 9.5 | 7.5 | Wheat bran, shorts, ground wheat screenings, corn bran |
| Bridgeton Milling Company, Bridgeton, Ind. Mixed Feed ----- | 6621 | 4.0 | 9.3 | 9.0 | Corn, oats, wheat bran, corn bran, ground wheat screenings |
| Mill Feed ----- | 7226 | 3.7 | 13.0 | 10.0 | Wheat bran, middlings, corn bran, ground wheat screenings |
| Wheat Shorts ----- | 7717 | 2.0 | 13.0 | 8.0 | Wheat shorts |
| Bran & Ground Screenings ----- | 8177 | 3.8 | 13.0 | 10.0 | Wheat bran, ground wheat screenings |
| Bristol Milling Company, Bristol, Ind. Wheat Middlings ----- | 2019 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Wheat Bran ----- | 2150 | 3.8 | 13.0 | 9.0 | Wheat bran |
| "Buckwheat" Mixed Feed ----- | 8883 | 3.5 | 14.0 | 18.0 | Buckwheat hulls, buckwheat middlings |
| Brizius Company, The Chas. W., Newburgh, Ind. Eagle Mixed Feed ----- | 5927 | 4.0 | 15.1 | 5.9 | Wheat bran, middlings |
| Eagle Corn Feed Meal ----- | 6075 | 2.7 | 6.8 | 5.0 | Corn feed meal |
| Eagle Wheat Shorts or Middlings ----- | 7194 | 3.8 | 14.0 | 6.0 | Wheat middlings |
| Eagle Corn Bran ----- | 7388 | 4.0 | 8.3 | 13.5 | Corn bran |
| Eagle Wheat Bran ----- | 8843 | 4.0 | 14.5 | 10.0 | Wheat bran |
| Brook Flour & Feed Mill, Brook, Ind. Corn Bran ----- | 2430 | 4.5 | 7.0 | 10.0 | Corn bran |
| Chop Feed ----- | 2431 | 3.5 | 9.0 | 8.0 | Corn, oats |
| Rising Sun Middlings and Ground Screenings ----- | 8936 | 4.0 | 14.0 | 16.0 | Wheat middlings, ground wheat screenings |
| Rising Sun Bran and Ground Screenings ----- | 8937 | 3.0 | 12.0 | 15.0 | Wheat bran, ground wheat screenings |
| Brooks & Son, L., Vincennes, Ind. Corn Bran ⁵ ----- | 4759 | 4.0 | 7.0 | 10.0 | Corn bran |
| Brose, George, Evansville, Ind. Wheat Bran & Screenings ----- | 2942 | 3.2 | 13.5 | 12.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings and Screenings ----- | 6854 | 3.8 | 15.5 | 7.0 | Wheat middlings, ground wheat screenings |
| Brose & Arnold, Evansville, Ind. Bran and Screenings ----- | 2257 | 3.7 | 14.0 | 11.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings ----- | 7491 | 4.0 | 14.0 | 8.0 | Wheat middlings |
| Brotherton & Son, R. E., Terre Haute, Ind. Chop Feed ----- | 1119 | 3.5 | 10.5 | 5.5 | Wheat bran, corn meal, oats |
| Brown & Cole, Vevay, Ind. A. Mixed Feed ----- | 7771 | 3.7 | 14.0 | 10.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Browning Milling Company, W. A., Evansville, Ind. Corn Bran ----- | 2163 | 4.0 | 7.0 | 14.0 | Corn bran |
| Corn Feed Meal ----- | 3537 | 2.4 | 6.7 | 5.0 | Corn feed meal |
| Brudi & Company, Jos., New Haven, Ind. Middlings ----- | 2246 | 2.8 | 13.1 | 8.0 | Wheat middlings |

⁵ Succeeded by U. G. McCoy & Co.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Brumfiel Feed & Produce Company, Marion, Ind. | | | | | | |
| Corn & Oats Chop ----- | 3196 | 3.9 | 9.5 | 6.0 | | Corn, oats |
| Mixed Feed ----- | 3247 | 3.0 | 13.0 | 12.0 | | Wheat bran, middlings, screenings, corn bran |
| Bundy Bros., Vallonia, Ind. | | | | | | |
| Mill Feed ----- | 7861 | 3.4 | 13.0 | 10.0 | | Wheat bran, middlings, ground wheat screenings, corn bran |
| Shorts ----- | 7862 | 3.0 | 13.0 | 8.0 | | Wheat shorts |
| Bundy Mill Company, L. L., Vallonia, Ind. | | | | | | |
| Corn Feed Meal ----- | 4095 | 2.7 | 7.5 | 7.0 | | Corn feed meal |
| Bunker Hill Milling Company, Evansville, Ind. | | | | | | |
| Bran, Shipstuff and Screenings ----- | 2586 | 3.0 | 12.0 | 10.0 | | Wheat bran, middlings, ground wheat screenings |
| Fancy Shorts ----- | 4571 | 2.0 | 10.0 | 8.0 | | Wheat shorts |
| Wheat Bran and Screenings ----- | 4588 | 2.0 | 10.0 | 12.0 | | Wheat bran, ground wheat screenings |
| Burge-Thomas Milling Company, Marion, Ind. ⁶ | | | | | | |
| Shorts ----- | 4728 | 4.0 | 14.0 | 8.0 | | Wheat shorts |
| Corn Bran ----- | 5758 | 3.5 | 7.0 | 12.0 | | Corn bran |
| Corn Feed Meal ----- | 5759 | 2.5 | 7.5 | 5.0 | | Corn feed meal |
| Mixed Feed ----- | 5760 | 3.8 | 14.0 | 11.0 | | Wheat bran, middlings, ground wheat screenings |
| Wheat Bran and Wheat Screenings ----- | 6440 | 3.1 | 14.0 | 10.0 | | Wheat bran, whole wheat screenings |
| Burkhart, J. E., Georgetown, Ind. | | | | | | |
| Shipstuff ----- | 975 | 3.8 | 14.0 | 10.0 | | Wheat bran, middlings |
| Burns, W. T., Rising Sun, Ind. | | | | | | |
| Mixed Feed ----- | 7768 | 3.0 | 14.0 | 7.0 | | Wheat bran, middlings |
| Burrell & Morgan, Elkhart, Ind. | | | | | | |
| Bran ----- | 253 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| Middlings ----- | 254 | 4.0 | 14.0 | 7.0 | | Wheat middlings |
| Butcher & Duncan, Oakland City, Ind. | | | | | | |
| Chop Feed ----- | 7613 | 3.0 | 10.0 | 5.0 | | Corn, oats, wheat, corn feed meal |
| Butler & Company, Edw. J., Chicago, Ill. | | | | | | |
| Standard Middlings ----- | 5424 | 4.0 | 15.0 | 7.0 | | Wheat middlings |
| Wheat Bran and Screenings ----- | 8346 | 4.0 | 14.0 | 14.0 | | Wheat bran, ground wheat screenings |
| Wheat Flour Middlings and Screenings ----- | 8347 | 4.0 | 14.0 | 10.0 | | Wheat middlings, ground wheat screenings |
| Standard Middlings and Screenings ----- | 8348 | 4.0 | 14.0 | 14.0 | | Wheat middlings, ground wheat screenings |
| Butler's Premium Chop Feed ----- | 8806 | 4.1 | 12.4 | 12.0 | | Ground screenings from wheat and barley |
| Butler Milling Company, Butler, Ind. | | | | | | |
| Butler Milling Co's Wheat Bran ----- | 1029 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| Wheat Middlings ----- | 7082 | 3.6 | 14.0 | 7.0 | | Wheat middlings |
| Butt & Bro., L. T., Center Point, Ind. | | | | | | |
| Mixed Feed ----- | 4431 | 3.5 | 13.5 | 10.0 | | Wheat bran, shorts, ground wheat screenings, corn bran |
| Corn Feed Meal ----- | 5123 | 3.0 | 7.0 | 5.0 | | Corn feed meal |
| Wheat Middlings ----- | 9334 | 3.5 | 13.5 | 7.0 | | Wheat middlings |
| Buzbee, H., Jonesboro, Ind. | | | | | | |
| Chop Feed ----- | 5685 | 4.0 | 10.0 | 9.5 | | Corn, oats, corn feed meal |
| Byrnes & Company, W. J., Chicago, Ill. | | | | | | |
| Wheat Bran ----- | 5435 | 3.5 | 15.7 | 12.9 | | Wheat bran |

⁶ Succeeded by Thomas Milling Co.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Cadick Milling Company, Grandview, Ind. Bran and Screenings ----- | 7858 | 3.8 | 15.0 | 10.0 | Wheat bran, ground wheat screenings, corn bran |
| Shipstuff ----- | 7859 | 4.0 | 16.0 | 7.0 | Wheat shorts, middlings, reddog flour |
| Mixed Feed ----- | 9196 | 4.0 | 15.0 | 9.0 | Wheat bran, shorts, ground wheat screenings |
| Cagle & Schopmeyer, Poland, Ind. ⁷ Mixed Feed ----- | 6884 | 3.8 | 13.0 | 13.0 | Wheat bran, middlings, shorts, ground wheat screenings, corn bran |
| Cannelton Flour Mills, Cannelton, Ind. Ship & Wheat Screenings ----- | 2589 | 4.0 | 14.0 | 9.0 | Wheat middlings, ground wheat screenings |
| "A" Mixed Feed ----- | 3426 | 3.5 | 13.5 | 10.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Mixed Bran & Screenings ----- | 3427 | 3.4 | 13.5 | 12.0 | Wheat bran, ground wheat screenings, corn bran |
| Carmer Company, J. M., Auburn, Ind. Carmer & Walker Chop Feed ----- | 7925 | 3.9 | 9.5 | 6.5 | Corn, oats |
| Carpenter, A. J., Hamilton, Ind. A. J. Carpenter's Corn and Oat Chop ----- | 307 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Carpenter, B. O., Perrysville, Ind. Wheat Bran ----- | 3582 | 3.0 | 14.0 | 10.0 | Wheat bran |
| "Wheat Middlings" ----- | 4712 | 2.8 | 14.0 | 7.0 | Wheat middlings |
| Carter, C. F., Terre Haute, Ind. Bran & Homoeo Mixed ----- | 4003 | 5.0 | 10.0 | 9.0 | Wheat bran, hominy meal |
| Carter Feed Store, The, Martinsville, Ind. Chop Feed ----- | 4862 | 3.0 | 9.0 | 7.0 | Corn, oats, corn feed meal |
| Cauble, O. L., Pekin, Ind. Wheat Shorts ----- | 1016 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Wheat Bran ----- | 1018 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Corn Bran ----- | 6129 | 2.0 | 8.0 | 13.0 | Corn bran |
| Mixed Feed ----- | 6130 | 2.0 | 10.0 | 10.0 | Wheat bran, shorts, ground wheat screenings, wheat dust, mill sweepings |
| Mill Feed ----- | 8048 | 4.0 | 16.0 | 9.0 | Wheat bran, wheat middlings, not exceeding mill's run of ground cleaned wheat screenings |
| Cauble & Dunlevy, Henryville, Ind. Corn Bran ----- | 1728 | 4.0 | 7.0 | 13.0 | Corn bran |
| Corn Feed Meal ----- | 4296 | 2.7 | 6.8 | 5.0 | Corn feed meal |
| Star Mixed Feed ----- | 8839 | 4.0 | 14.0 | 8.5 | Wheat bran, wheat middlings, wheat screenings not exceeding mill run |
| Cayuga Milling Company, Cayuga, Ind. Cayuga Milling Co's Mixed Wheat and Corn Bran & Wheat Shorts ----- | 418 | 4.2 | 12.0 | 10.0 | Wheat bran, shorts, corn bran |
| Cayuga Milling Co's Mixed Wheat Bran & Wheat Shorts ----- | 419 | 3.9 | 14.0 | 9.0 | Wheat bran, shorts |
| Cayuga Milling Co's Wheat Shorts ----- | 420 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Cayuga Milling Co's Wheat Bran ----- | 421 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Wheat & Corn Bran ----- | 3892 | 3.5 | 12.5 | 11.0 | Wheat bran, corn bran |
| Corn Meal, Shorts, Wheat Bran & Corn Bran ----- | 4373 | 3.0 | 11.0 | 11.0 | Wheat bran, shorts, corn meal, corn bran |
| Corn Meal and Shorts Mixed ----- | 4374 | 3.0 | 12.0 | 9.0 | Wheat shorts, corn meal |
| "B" Mixed Feed ----- | 5175 | 3.5 | 13.0 | 6.0 | Wheat shorts, corn feed meal |
| "A" Mixed Feed ----- | 5176 | 3.6 | 11.0 | 8.0 | Wheat bran, shorts, corn feed meal |
| Corn Bran ----- | 9330 | 4.0 | 7.0 | 13.0 | Corn bran |
| Central Mills Company, Dixon, Ill. Oat Meal Middlings ----- | 6654 | 5.0 | 14.0 | 7.0 | Oat middlings |

⁷ Succeeded by L. H. Schopmeyer

Brands Certified by Manufacturers as Being on Sale, May 1, 1913 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Central Kansas Milling Company, Lyons, Kansas | | | | | | |
| Wheat Shorts ----- | 8751 | 3.7 | 16.0 | 5.5 | Wheat shorts | |
| Wheat Bran ----- | 8752 | 3.5 | 14.5 | 10.0 | Wheat bran | |
| Chapin & Company, Hammond, Ind. | | | | | | |
| Wheat Bran ----- | 4683 | 4.0 | 14.0 | 11.0 | Wheat bran | |
| Wheat Middlings ----- | 4687 | 4.0 | 14.0 | 8.0 | Wheat middlings | |
| Chapman-Doake Company, The, Decatur, Ill. | | | | | | |
| Corn & Oats Chop ----- | 8590 | 4.0 | 10.0 | 7.0 | Corn, oats | |
| Chicago Heights Oil Mfg. Company, Chicago, Ill. | | | | | | |
| "Prize" Standard Middlings with Ground Screenings ----- | 6444 | 4.0 | 15.0 | 7.0 | Wheat middlings, ground wheat screenings | |
| "Prize" White Middlings ----- | 7004 | 3.5 | 15.0 | 5.0 | Wheat middlings | |
| "Prize" Wheat Bran and Screenings ----- | 7005 | 3.5 | 14.0 | 10.0 | Wheat bran, ground wheat screen- ings not exceeding mill run | |
| "Prize" Standard Middlings and Screenings-- | 7006 | 4.0 | 15.0 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| "Prize" Red Dog Flour ----- | 7402 | 4.0 | 17.0 | 5.0 | Low grade wheat flour containing the finer particles of wheat bran | |
| "Prize" Rye Middlings ----- | 7595 | 3.0 | 14.5 | 5.0 | Rye middlings | |
| Christian & Company, Geo. C., Minneapolis, Minn. | | | | | | |
| Geo. C. Christian's Red Dog ----- | 3769 | 3.5 | 15.5 | 4.0 | Low grade wheat flour containing the finer particles of wheat bran | |
| Jersey Bran ----- | 3770 | 4.0 | 13.0 | 11.5 | Wheat bran | |
| Poland Middlings ----- | 3771 | 4.0 | 14.0 | 8.0 | Wheat middlings | |
| White Middlings & Screenings ----- | 5515 | 4.0 | 14.0 | 8.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Bran & Screenings ----- | 5516 | 4.0 | 13.0 | 12.0 | Wheat bran, ground wheat screen- ings not exceeding mill run | |
| Middlings & Screenings ----- | 5517 | 4.0 | 14.0 | 9.5 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Jersey Wheat Bran with Ground Screenings Not exceeding Mill Run ----- | 7429 | 4.0 | 13.0 | 13.0 | Wheat bran, ground wheat screen- ings not exceeding mill run | |
| Poland Wheat Standard Middlings with Ground Screenings not exceeding Mill Run-- | 7430 | 4.0 | 14.0 | 11.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Cicero Mills & Elevator, Cicero, Ind. | | | | | | |
| Chop Feed ----- | 1799 | 3.7 | 9.5 | 6.0 | Corn, oats | |
| Cincinnati Grain & Hay Company, The, Cincinnati, Ohio | | | | | | |
| Wheat Bran ----- | 8665 | 4.0 | 14.5 | 9.0 | Wheat bran | |
| Wheat Middlings ----- | 8666 | 4.2 | 15.7 | 6.0 | Wheat middlings | |
| Mixed Wheat Feed and Screenings ----- | 8805 | 4.2 | 15.1 | 8.0 | Wheat bran, wheat middlings, 6% ground wheat screenings | |
| City Milling Company, Kendallville, Ind. | | | | | | |
| Wheat Bran ----- | 6273 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Wheat Middlings ----- | 6370 | 3.0 | 13.0 | 7.0 | Wheat middlings | |
| Corn Feed Meal ----- | 9234 | 3.0 | 8.0 | 7.0 | Corn feed meal | |
| City Mills, South Whitley, Ind. | | | | | | |
| Wheat Bran ----- | 6105 | 3.5 | 14.0 | 10.0 | Wheat bran | |
| Wheat Middlings ----- | 6106 | 3.5 | 14.0 | 6.0 | Wheat middlings | |
| Chop Feed ----- | 6107 | 3.0 | 9.0 | 7.0 | Corn, oats, corn feed meal | |
| City Roller Mills, Vevay, Ind. | | | | | | |
| Mixed Feed or Wheat & Corn Product----- | 1158 | 3.0 | 14.0 | 8.2 | Wheat bran, middlings, shorts, ground wheat screenings, corn bran | |
| Clark Bros., Hagerstown, Ind. | | | | | | |
| Wheat Middlings ----- | 2007 | 3.7 | 14.0 | 7.0 | Wheat middlings | |
| Wheat Bran ----- | 2562 | 3.2 | 12.0 | 10.0 | Wheat bran | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Clark & Sons, C. G., Rushville, Ind. Clark's Corn & Wheat Bran (Mixed)----- | 185 | 3.7 | 14.0 | 10.7 | Corn bran, wheat bran |
| Clark's Wheat Bran ----- | 188 | 3.7 | 14.0 | 10.3 | Wheat bran |
| Clarks Mixed Feed ----- | 5813 | 2.9 | 14.0 | 10.7 | Wheat bran, ground wheat screenings, corn bran |
| Clarks Middlings ----- | 7918 | 4.5 | 18.0 | 7.0 | Wheat middlings |
| Wheat Middlings & Ground Wheat Screenings | 9023 | 4.0 | 14.0 | 8.0 | Wheat middlings, ground wheat screenings |
| Claro Milling Company, Waseca, Minn. Claro Wheat Bran with Ground Screenings--- | 6615 | 3.0 | 14.0 | 12.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Claro Wheat Standard Middlings with Ground Screenings ----- | 6616 | 3.0 | 14.0 | 12.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Claro Wheat Flour Middlings ----- | 7045 | 3.0 | 15.0 | 6.0 | Wheat middlings |
| Claro Red Dog ----- | 7046 | 3.0 | 15.0 | 5.0 | Low grade wheat flour containing the finer particles of wheat bran |
| Claypole, Geo. M., Sardinia, Ind. Geo. M. Claypole's Mixed Feed ----- | 1389 | 3.5 | 14.0 | 12.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Geo. M. Claypole's Wheat Bran ----- | 2144 | 3.2 | 14.0 | 10.0 | Wheat bran |
| Geo. M. Claypole's Wheat Middlings ----- | 2500 | 4.0 | 14.0 | 8.0 | Wheat middlings |
| Corn Feed Meal ----- | 4056 | 2.7 | 7.0 | 7.0 | Corn feed meal |
| Chop Feed ----- | 8165 | 3.5 | 9.5 | 10.0 | Corn, oats, wheat |
| Clayton Milling Company, Clayton, Ind. Mixed Bran ----- | 2525 | 3.7 | 14.0 | 12.0 | Wheat bran, corn bran |
| Wheat Middlings ----- | 7664 | 3.0 | 14.0 | 8.0 | Wheat middlings |
| Mixed Feed ----- | 7665 | 3.0 | 13.0 | 11.0 | Wheat bran, wheat middlings |
| White Middlings ----- | 7722 | 1.8 | 13.0 | 5.0 | Wheat middlings |
| Clifty Mills, R. R. 3, Greensburg, Ind. Mill Feed ----- | 4381 | 3.0 | 13.0 | 12.0 | Wheat bran, middlings |
| Clinton Grain Company, Frankfort, Ind. Wheat and Oats Chop ----- | 9062 | 3.0 | 9.0 | 9.0 | Wheat, oats |
| Clover Leaf Flour Mills, Kokomo, Ind. Mixed Feed ----- | 3583 | 3.8 | 13.0 | 9.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Wheat Middlings ----- | 4449 | 2.8 | 12.0 | 8.0 | Wheat middlings |
| Clover Leaf Mixed Feed ----- | 5341 | 3.5 | 13.0 | 11.0 | Wheat bran, corn bran, ground wheat screenings |
| Clyne, I. B., Crawfordsville, Ind. Chop Feed ----- | 6207 | 3.0 | 8.0 | 6.0 | Corn, oats |
| Coal City Milling Company, Coal City, Ind. Pure Corn and Oats Chop ----- | 2952 | 3.5 | 9.5 | 7.0 | Corn, oats |
| Coal City Mixed Bran ----- | 6601 | 3.5 | 13.5 | 11.5 | Wheat bran, corn bran |
| Coal City Wheat Shorts ----- | 6913 | 3.5 | 14.0 | 8.0 | Wheat shorts |
| Collamer Milling Company, Collamer, Ind. White Middlings ----- | 7052 | 2.0 | 13.0 | 5.0 | Wheat middlings |
| Mixed Feed ----- | 7053 | 3.5 | 14.0 | 12.0 | Wheat bran, germ middlings |
| Collier Bros., Culver, Ind. Wheat Bran ----- | 1471 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Collins & Swallow, Lake, Ind. Corn Bran ----- | 9394 | 2.5 | 7.0 | 10.0 | Corn bran |
| Columbia City Mill & Elevator Company, ⁸ Columbia City, Ind. A. Chop Feed ----- | 6991 | 3.0 | 8.0 | 10.0 | Corn, oats, rye, barley, corn feed meal |

⁸ Succeeded by Farmers Mill & Elevator Company

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--|---|---|--|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Columbus Milling Company, Columbus, Ind. Corn Bran ----- A. Mixed Feed ----- | 6903 8676 | 4.0 3.0 | 8.0 13.5 | 13.0 12.0 | Corn bran Wheat bran, middlings, ground wheat screenings, corn bran | |
| Combs & Sons, L., Vincennes, Ind. Corn & Oats Feed ----- | 8070 | 3.0 | 8.0 | 9.0 | Corn, oats | |
| Commander Mill Company, Minneapolis, Minn. Commander Wheat Bran with Ground Screenings not exceeding Mill Run ----- Commander Standard Middlings with Ground Screenings not exceeding Mill Run ----- Commander Flour Middlings with Ground Screenings not exceeding Mill Run ----- | 9275 9276 9277 | 4.0 5.0 5.5 | 14.0 15.5 17.0 | 13.5 10.0 7.0 | Wheat bran, ground wheat screenings not exceeding mill run Wheat middlings, ground wheat screenings not exceeding mill run Wheat middlings, ground wheat screenings not exceeding mill run | |
| Cook, E. N., Plymouth, Ind. Cook's Chop Feed ----- | 4770 | 3.0 | 9.0 | 9.0 | Corn, oats, ground corn screenings, corn feed meal | |
| Cooking Milling Company, Richmond, R. R. 4, Ind. Wheat Bran ----- Wheat Middlings ----- Corn Feed Meal ----- | 4796 4797 4798 | 3.4 3.7 2.0 | 12.0 14.0 7.0 | 10.0 7.0 6.0 | Wheat bran Wheat middlings Corn feed meal | |
| Coombs Milling Company, Wm. A., Coldwater, Mich. Wheat Middlings with Ground Screenings not exceeding Mill Run ----- Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7344 7345 | 3.0 3.0 | 15.0 14.0 | 6.0 10.0 | Wheat middlings, ground wheat screenings not exceeding mill run Wheat bran, ground wheat screenings not exceeding mill run | |
| Coppes Bros. & Zook, Nappanee, Ind. Bran ----- Mixed Feed ----- Middlings and Ground Wheat Screenings ----- Reddog Flour (Branded "F") ----- Corn Bran and Ground Corn Screenings ----- | 5628 6919 7561 7610 9329 | 3.6 4.5 4.0 2.7 4.0 | 13.5 14.0 15.8 14.0 9.0 | 11.0 9.0 6.0 2.3 9.0 | Wheat bran Wheat bran, middlings, ground wheat screenings Wheat middlings, ground wheat screenings Low grade wheat flour containing the finer particles of wheat bran Corn bran, ground corn screenings | |
| Corydon Milling Company, Corydon, Ind. Wheat Middlings ----- "A" Mixed Feed ----- | 3305 7109 | 4.0 3.5 | 14.0 14.0 | 7.0 10.0 | Wheat middlings Wheat bran, corn bran, ground wheat screenings | |
| Crabbs Reynolds Taylor Company, Crawfordsville, Ind. Chop Feed ----- Ground Corn and Oats Screenings ----- | 1929 8208 | 3.7 3.0 | 9.0 9.0 | 6.0 10.0 | Corn, oats Ground screenings from corn and oats | |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. Wheat Middlings ----- Mixed Feed ----- Chop ----- Thrift Chop Feed ----- | 2467 2468 8600 8688 | 4.0 3.7 3.0 3.0 | 14.0 14.0 9.0 9.0 | 7.0 10.0 10.0 10.0 | Wheat middlings Wheat bran, ground wheat screenings Corn, oats, corn feed meal Corn, oats, corn feed meal | |
| Crabbs Reynolds Taylor Company, Reynolds, Ind. C. R. T. Chop Feed ----- | 5831 | 3.0 | 9.0 | 7.0 | Corn, oats, corn feed meal | |
| Crandal, L. N., Fremont, Ind. Corn & Oats Chop ----- Wheat Middlings ----- Wheat Bran ----- | 1650 1651 1652 | 3.9 4.0 3.8 | 9.5 14.0 14.0 | 6.0 7.0 10.0 | Corn, oats Wheat middlings Wheat bran | |
| Crawford Feed Store, Jay S., Crown Point, Ind. Crawford's Chop Feed ----- | 5246 | 3.0 | 8.0 | 6.0 | Corn, oats, corn feed meal | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent, crude fat | Not less than per cent, crude protein | Not more than per cent, crude fiber | | |
| Creitz & Deardoff, Centerville, Ind. Corn Feed Meal ----- | 8940 | 3.0 | 8.0 | 10.0 | | Corn feed meal |
| Crescent Milling Company, Crothersville, Ind. A. Mixed Feed ----- | 7146 | 3.5 | 14.0 | 9.0 | | Wheat bran, middlings, corn bran, corn feed meal, ground wheat screenings |
| Mixed Feed ----- | 7574 | 3.8 | 14.5 | 9.0 | | Wheat bran, middlings, corn bran, whole wheat screenings |
| Crescent Milling Company, Fairfax, Minn. Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 6772 | 5.1 | 14.2 | 13.2 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Standard Middlings with Ground Screenings not exceeding Mill Run ----- | 6773 | 5.5 | 16.2 | 10.0 | | Wheat middlings, ground wheat screenings not exceeding mill run |
| Crete Mills, The, Crete, Neb. Bran ----- | 6418 | 3.1 | 13.0 | 11.6 | | Wheat bran |
| Shorts ----- | 6419 | 5.1 | 15.0 | 5.9 | | Wheat shorts |
| Crosby Roller Milling Company, Topeka, Kans. Pure Winter Wheat Middlings ----- | 3603 | 4.0 | 16.0 | 6.0 | | Wheat middlings |
| Pure Winter Wheat Bran ----- | 3604 | 3.0 | 14.0 | 10.0 | | Wheat bran |
| Crown Mill & Feed Company, Evansville, Ind. Corn Bran ----- | 7772 | 4.0 | 7.0 | 14.0 | | Corn bran |
| Croxton, James W., Cloverdale, Ind. Middlings ----- | 246 | 3.8 | 14.0 | 5.0 | | Wheat middlings |
| Croxton & Company, J. W., Cloverdale, Ind. Croxtion's Extra Mixed Feed ----- | 2632 | 3.5 | 12.0 | 12.0 | | Wheat bran, middlings, ground wheat screenings, corn bran |
| Crull, Frank, Mooreland, Ind. Mixed Feed ----- | 2837 | 3.7 | 14.0 | 12.0 | | Wheat bran, ground wheat screenings |
| Wheat Middlings ----- | 2838 | 3.9 | 14.0 | 8.0 | | Wheat middlings |
| Cullom & Sons, W. H., Frankfort, Ind. Corn and Oats Chop ----- | 1514 | 3.9 | 9.0 | 9.0 | | Corn, oats |
| Curby Milling Company, Curby, Ind. Shipstuff ----- | 7089 | 2.5 | 12.0 | 8.0 | | Wheat bran, middlings |
| Cutsinger & Thompson, Shelbyville, Ind. Corn Bran ----- | 8747 | 2.5 | 6.0 | 10.0 | | Corn bran |
| Corn Feed Meal ----- | 8748 | 2.5 | 7.0 | 5.0 | | Corn feed meal |
| Dahnke-Walker Milling Company, Union City, Tenn. Danco Feed ----- | 9393 | 7.0 | 10.0 | 7.0 | | Corn hearts, corn bran |
| Daily, C. C., Bristol, R. R. 5, Ind. Bonneville No. 1 Chop Feed ----- | 5501 | 3.0 | 9.0 | 8.0 | | Corn, oats, corn feed meal |
| Dalrymple, J. W., Rising Sun, Ind. Bran & Shorts ----- | 810 | 3.8 | 14.0 | 10.0 | | Wheat bran, wheat shorts |
| Daniels & Pickering Company, Middletown, Ind. ⁹ Corn Feed Meal ----- | 4331 | 2.5 | 7.0 | 5.0 | | Corn feed meal |
| Darlington Grain Company, Darlington, Ind. Chop Feed ----- | 4546 | 3.0 | 9.0 | 6.0 | | Wheat, corn, oats |
| Corn and Oats Chop ----- | 4547 | 3.5 | 9.0 | 7.0 | | Corn, oats |
| Darlington Grist Mill, Darlington, Ind. Chop Feed ----- | 2361 | 3.9 | 9.5 | 8.0 | | Corn, oats |

⁹ Succeeded by J. M. Walker & Son

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Deck, James M., Roann, Ind. ¹⁰ | | | | | | |
| Pure Winter Wheat Bran ----- | 195 | 3.7 | 14.0 | 10.0 | Wheat bran | |
| Pure Wheat Middlings ----- | 196 | 4.0 | 14.0 | 7.0 | Wheat middlings | |
| Delp Grain Company, E. E., Bourbon, Ind. | | | | | | |
| Crushota ----- | 338 | 3.5 | 9.0 | 6.0 | Corn, oats | |
| Wheat Bran & Screenings ----- | 7555 | 3.8 | 14.0 | 11.0 | Wheat bran, ground wheat screenings | |
| Wheat Middlings & Screenings ----- | 7556 | 4.0 | 14.0 | 8.0 | Wheat middlings, ground wheat screenings | |
| Spccial Corn Feed Meal ----- | 8372 | 6.0 | 11.0 | 5.0 | Corn feed meal | |
| Deutsch & Sickert Company, Milwaukee, Wis. | | | | | | |
| Coarse Wheat Bran ----- | 5389 | 4.0 | 15.0 | 12.0 | Wheat bran | |
| Pure Wheat Middlings ----- | 5472 | 5.0 | 15.0 | 7.0 | Wheat middlings | |
| Mystic Bran ----- | 7187 | 4.5 | 14.0 | 15.0 | Wheat bran | |
| Eagle Wheat Standard Middlings with Ground Screenings ----- | 7188 | 5.0 | 14.0 | 9.0 | Wheat middlings, ground wheat screenings | |
| Wheat Bran with Screenings ----- | 7259 | 4.0 | 13.0 | 13.0 | Wheat bran, ground wheat screenings | |
| Corn Feed Meal ----- | 8553 | 6.0 | 9.0 | 6.0 | Corn feed meal from yellow and white corn | |
| Flour Middlings Including Mill Run Screenings | 8555 | 4.3 | 16.0 | 7.7 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Reddog Flour ----- | 8582 | 5.0 | 15.0 | 4.0 | Low grade wheat flour containing the finer particles of wheat bran | |
| Mixed Feed ----- | 8705 | 4.8 | 15.3 | 10.4 | Wheat bran, middlings, ground wheat screenings not exceeding mill run | |
| Rye Middlings Including Mill Run Screenings | 8761 | 3.0 | 14.0 | 5.5 | Rye middlings, ground rye screenings | |
| White Corn Bran ----- | 9319 | 6.0 | 9.0 | 11.0 | Corn bran | |
| Dickinson Company, The Albert, Chicago, Ill. | | | | | | |
| Corn Feed Meal ----- | 3616 | 2.5 | 7.0 | 5.0 | Corn feed meal | |
| Wheat Standard Middlings with Ground Screenings not to exceed Mill Run ----- | 5840 | 5.0 | 15.0 | 9.5 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 5841 | 4.0 | 14.5 | 12.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Flour Middlings with Ground Wheat Screenings not to Exceed Mill Run ----- | 6944 | 4.5 | 15.5 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Albert Dickinson Co. Red Dog Flour ----- | 8581 | 4.0 | 16.0 | 4.0 | Low grade wheat flour containing the finer particles of wheat bran | |
| Dilger Bros., Mariah Hill, Ind. | | | | | | |
| Mixed Bran ----- | 3181 | 3.0 | 13.0 | 10.0 | Wheat bran, corn bran | |
| Dilger Bros. Wheat Shorts ----- | 3632 | 2.5 | 12.0 | 8.0 | Wheat shorts | |
| Dilley Company, C. L., Logansport, Ind. | | | | | | |
| Dilley's No. 1 Chop Feed ----- | 7951 | 3.5 | 9.0 | 7.0 | Corn, oats, corn feed meal | |
| Dillsboro Milling Company, Dillsboro, Ind. | | | | | | |
| Wheat Shorts ----- | 1038 | 4.0 | 14.0 | 8.0 | Wheat shorts | |
| Mixed Feed ----- | 4053 | 2.9 | 14.0 | 10.0 | Wheat bran, corn bran, wheat dust | |
| Dixie Mills Company, East St. Louis, Ill. | | | | | | |
| Dixie Corn & Oats Chop ----- | 7693 | 3.0 | 8.0 | 10.0 | Corn and oats | |
| Dodd & Son, H. C., Charlestown, Ind. | | | | | | |
| Mill Offal ----- | 2338 | 4.0 | 14.0 | 9.0 | Wheat bran, shorts, middlings, ground wheat screenings | |
| Dodge Mfg. Co., Mishawaka, Ind. | | | | | | |
| Bran ----- | 9290 | 4.0 | 15.0 | 10.0 | Wheat bran | |
| Middlings ----- | 9291 | 4.5 | 15.0 | 6.0 | Wheat middlings | |
| Donahue Stratton Company, Milwaukee, Wis. | | | | | | |
| Wheat Bran with Screenings Not to Exceed Mill Run ----- | 8881 | 4.5 | 14.3 | 14.6 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Wheat Middlings with Screenings Not to Exceed Mill Run ----- | 8882 | 4.5 | 16.2 | 8.4 | Wheat middlings, ground wheat screenings not exceeding mill run | |

¹⁰ Succeeded by James H. Deck

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Donmeyer, Gardner & Co., Peoria, Ill. | | | | | | |
| Pure Wheat Middlings ----- | 2612 | 4.5 | 15.0 | 8.0 | Wheat middlings | |
| Wheat Bran with Screenings Not to exceed Mill Run ----- | 6208 | 4.0 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not to exceed mill run | |
| Standard Middlings or Shorts ----- | 9009 | 4.5 | 15.0 | 8.0 | Wheat middlings | |
| Doolittle Mills, Doolittle Mills, Ind. | | | | | | |
| Bran and Middlings ----- | 8345 | 3.5 | 14.0 | 8.0 | Wheat bran, middlings | |
| Dotson & Sons, Chas., Parker, Ind. | | | | | | |
| Rye Mixed Feed ----- | 9232 | 2.0 | 11.0 | 8.0 | Rye bran, rye middlings | |
| Dreyer Commission Company, St. Louis, Mo. | | | | | | |
| Corn Feed Meal ----- | 8606 | 8.0 | 8.0 | 11.5 | Corn feed meal | |
| White Corn Feed Meal ----- | 8632 | 3.0 | 10.0 | 6.0 | Corn feed meal | |
| W. Corn Feed Meal ----- | 8655 | 3.5 | 8.0 | 5.0 | Corn feed meal | |
| Dubois Milling Company, Dubois, Ind. | | | | | | |
| Bran & Shorts ----- | 1192 | 3.6 | 13.0 | 10.0 | Wheat bran, wheat shorts | |
| Duglay & Jones, Churubusco, Ind. ¹¹ | | | | | | |
| Wheat Middlings ----- | 7468 | 3.0 | 13.0 | 7.0 | Wheat middlings | |
| Wheat Bran ----- | 7469 | 3.0 | 13.0 | 10.0 | Wheat bran | |
| Dunlap Grain Company, The J. M., Franklin, Ind. | | | | | | |
| Middlings & Screenings ----- | 8668 | 3.5 | 14.0 | 8.0 | Wheat middlings, ground wheat screenings | |
| "Dairy" Wheat Bran ----- | 8669 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Eagle Roller Mill Company, New Ulm, Minn. | | | | | | |
| Superb Red Dog ----- | 3555 | 5.7 | 20.7 | 3.8 | Low grade wheat flour containing the finer particles of wheat bran | |
| Wheat Middlings with Ground Screenings not Exceeding Mill Run ----- | 6087 | 4.5 | 15.4 | 9.5 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Wheat Bran with Ground Screenings not Exceeding Mill Run ----- | 7105 | 3.4 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Rye Middlings with Ground Screenings not Exceeding Mill Run ----- | 7604 | 3.5 | 16.0 | 7.0 | Rye middlings, ground rye screenings not exceeding mill run | |
| Flour Middlings with Ground Screenings not Exceeding Mill Run ----- | 7701 | 4.2 | 14.5 | 8.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Barley Mixed Feed with Ground Barley Screenings ----- | 9404 | 2.0 | 8.0 | 20.0 | Barley bran, barley middlings, barley hulls, ground barley screenings | |
| Early & Daniel Company, The, Cincinnati, Ohio | | | | | | |
| Bran & Screenings ----- | 7273 | 4.0 | 14.5 | 10.0 | Wheat bran, whole wheat screenings not exceeding mill run | |
| Middlings & Screenings ----- | 7274 | 4.0 | 15.0 | 8.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Mixed Feed and Screenings ----- | 8385 | 3.0 | 14.0 | 10.0 | Wheat bran, middlings, ground wheat screenings, not exceeding mill run | |
| Eberts & Bro., Charlestown, Ind. | | | | | | |
| "Bran" ----- | 2014 | 3.9 | 14.1 | 10.0 | Wheat bran | |
| "Ship Stuff" ----- | 2015 | 4.5 | 15.8 | 7.0 | Wheat middlings, wheat shorts | |
| Eberts' Mixed Feed ----- | 5241 | 4.3 | 16.0 | 11.0 | Wheat bran, middlings, corn bran, ground wheat screenings | |
| Pure Mixed Feed ----- | 5242 | 4.5 | 15.1 | 6.5 | Wheat bran, wheat middlings | |
| Bran & Screenings ----- | 6570 | 3.5 | 14.1 | 10.0 | Wheat bran, ground wheat screenings | |
| Middlings & Ground Screenings ----- | 6571 | 3.8 | 16.0 | 8.0 | Wheat middlings, ground wheat screenings | |
| Eberts & Bro., North Vernon, Ind. | | | | | | |
| Corn Bran ----- | 1242 | 5.0 | 8.0 | 13.0 | Corn bran | |
| Eberts' Mix-Feed ----- | 2652 | 4.0 | 15.5 | 8.0 | Wheat bran, middlings, ground wheat screenings | |
| Eberts C. & O. Feed ----- | 3742 | 3.5 | 9.0 | 6.0 | Corn and oats | |
| Mixed Feed ----- | 4151 | 4.0 | 15.5 | 11.0 | Wheat bran, middlings, ground wheat screenings, corn bran | |

¹¹ Succeeded by A. A. Jones

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Eberts & Bro., North Vernon, Ind. | | | | | | |
| Wheat Shorts ----- | 5413 | 4.0 | 15.0 | 7.0 | | Wheat shorts |
| "C" Mixed Feed ----- | 5612 | 3.5 | 11.0 | 12.0 | | Corn, wheat bran, middlings, ground wheat screenings |
| Corn Feed Meal ----- | 7669 | 2.5 | 7.5 | 5.0 | | Corn feed meal |
| Eberts Grain Company, Nabb, Ind. | | | | | | |
| Eberts Grain Co. Mixed Feed ----- | 4970 | 4.0 | 15.5 | 8.0 | | Wheat bran, middlings, ground wheat screenings |
| Eckert, Andrew W., Jasper, Ind. | | | | | | |
| Mixed Feed ----- | 7756 | 4.0 | 14.0 | 10.0 | | Wheat bran, middlings, whole wheat screenings |
| Eckhart Milling Company, B. A., Chicago, Ill. | | | | | | |
| Bran and Screenings ----- | 6194 | 4.0 | 14.0 | 11.0 | | Wheat bran, ground wheat screenings |
| Wheat and Rye Middlings with Ground Wheat Screenings not Exceeding Mill Run-- | 8673 | 4.0 | 14.0 | 7.0 | | Wheat middlings, rye middlings, ground wheat screenings not exceeding mill run |
| Mixed Feed ----- | 8674 | 4.0 | 14.0 | 11.0 | | Wheat bran, wheat middlings, rye middlings, ground wheat screenings not exceeding mill run |
| Flour Middlings ----- | 8675 | 4.0 | 15.0 | 7.0 | | Wheat and rye flour middlings |
| Eclipse Mill, The, Ramsey, Ind. | | | | | | |
| Mill Feed ----- | 2485 | 3.8 | 14.0 | 10.0 | | Wheat bran, wheat middlings |
| Eclipse Mixed Feed ----- | 3455 | 3.5 | 13.5 | 12.0 | | Wheat bran, middlings, screenings |
| Edinger & Company, Louisville, Ky. | | | | | | |
| Wheat Bran & Wheat Screenings ----- | 7205 | 4.0 | 14.5 | 10.0 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Wheat Middlings and Wheat Screenings----- | 7206 | 4.5 | 15.5 | 8.0 | | Wheat middlings, ground wheat screenings not exceeding mill run |
| Wheat Mixed Feed & Wheat Screenings----- | 7207 | 4.0 | 15.0 | 10.0 | | Wheat bran, middlings, ground wheat screenings not exceeding mill run |
| Arrow Feed Meal ----- | 7811 | 3.9 | 8.7 | 2.5 | | Corn feed meal |
| Edgerton Milling Company, Edgerton, Ohio | | | | | | |
| Dutsch's Mixed Feed ----- | 7213 | 3.0 | 14.0 | 10.0 | | Winter wheat bran, middlings, ground wheat screenings not to exceed mill run |
| Edwardsport Mills, Edwardsport, Ind. | | | | | | |
| Wheat Shorts ----- | 6830 | 3.0 | 13.0 | 7.0 | | Wheat shorts |
| Wheat Bran ----- | 7210 | 3.0 | 13.0 | 10.0 | | Wheat bran |
| Eesley & Company, Wm., College Corner, Ohio | | | | | | |
| Wheat Middlings ----- | 2921 | 4.0 | 14.0 | 7.0 | | Wheat middlings |
| Bran ----- | 3220 | 3.5 | 14.0 | 10.0 | | Wheat bran |
| Mixed Feed ----- | 4254 | 3.0 | 13.5 | 13.0 | | Wheat bran, ground wheat screenings, corn bran |
| Egloff Milling Company, Vincennes, Ind. | | | | | | |
| Wheat Bran, Ground Screenings and Corn Bran ----- | 6053 | 3.5 | 14.0 | 10.0 | | Wheat bran, ground wheat screenings, corn bran |
| Wheat Shorts ----- | 6054 | 4.0 | 14.0 | 8.0 | | Wheat shorts |
| Mixed Feed ----- | 6873 | 3.5 | 14.0 | 8.6 | | Wheat bran, middlings, corn bran, ground wheat screenings |
| Egloff Sons, A., St. Meinrad, Ind. | | | | | | |
| Bran & Screenings ----- | 2591 | 3.0 | 14.0 | 8.5 | | Wheat bran, whole wheat screenings, corn bran |
| Shorts ----- | 2749 | 3.8 | 15.0 | 4.2 | | Wheat shorts |
| Elizabeth Milling Company, Elizabeth, Ind. | | | | | | |
| E. M. Co's Wheat Bran and Middlings----- | 8410 | 3.7 | 14.0 | 10.0 | | Wheat bran, middlings |
| Emison, J. & S., Vincennes, Ind. | | | | | | |
| Middlings ----- | 1536 | 4.0 | 14.0 | 8.0 | | Wheat middlings |
| Mixed Feed ----- | 4237 | 3.0 | 14.0 | 9.0 | | Wheat bran, whole wheat screenings |
| Emisons Mixed Feed & Middlings ----- | 5768 | 3.5 | 14.0 | 8.5 | | Wheat bran, middlings, whole wheat screenings |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Emison & Company, J. & S., Vincennes, Ind. Feed Meal ----- | 4464 | 3.0 | 8.0 | 5.0 | Corn feed meal | |
| Emmert, C. B., Clarksburg, Ind. Mixed Feed ----- | 6929 | 3.0 | 13.0 | 11.0 | Wheat bran, middlings, ground wheat screenings, corn bran | |
| Empire Milling Company, Minneapolis, Minn. Empire Milling Co. Wheat Bran with Ground Screenings not Exceeding Mill Run ----- | 7393 | 4.0 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Empire Milling Company Wheat Standard Middlings with Ground Screenings Not Exceeding Mill Run ----- | 7394 | 4.0 | 15.0 | 9.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Empire Milling Company Wheat Flour Middlings with Ground Screenings Not Exceeding Mill Run ----- | 7395 | 4.5 | 17.0 | 5.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| English Milling Company, English, Ind. English Milling Co. Mixed Feed ----- | 966 | 4.0 | 14.1 | 9.2 | Wheat bran, middlings, corn bran, ground wheat screenings | |
| Enos, M. T., New Albany, Ind. Corn Bran ----- | 2499 | 5.0 | 9.0 | 13.0 | Corn bran | |
| Wheat Middlings ----- | 4062 | 3.4 | 15.0 | 8.0 | Wheat middlings | |
| Wheat Bran ----- | 4063 | 3.4 | 14.0 | 10.0 | Wheat bran | |
| Rolled Oats & Corn ----- | 4637 | 2.5 | 7.5 | 13.0 | Corn, oats | |
| Corn Feed Meal ----- | 5034 | 1.3 | 6.1 | 8.0 | Corn feed meal | |
| Enterprise Milling Company, Milroy, Ind. Bran & Screenings ----- | 2077 | 2.9 | 14.1 | 10.0 | Wheat bran, ground wheat screenings | |
| Middlings ----- | 2317 | 3.8 | 14.2 | 6.3 | Wheat middlings | |
| Erie Elevator, The, Rochester, Ind. Corn & Oat Chop ----- | 3416 | 3.5 | 8.5 | 10.0 | Corn, oats | |
| Erwin, J. C., Inwood, Ind. Corn and Oats Chop ----- | 3430 | 3.5 | 9.0 | 6.0 | Corn, oats | |
| Etna Lumber & Milling Company, Etna Green, Ind. Mixed Feed ----- | 5860 | 4.0 | 9.0 | 8.0 | Corn, oats, rye, corn bran | |
| Etna Bran & Screenings ----- | 6659 | 4.0 | 14.5 | 11.0 | Wheat bran, not exceeding mill's run of ground cleaned wheat screenings | |
| Etna Middlings & Screenings ----- | 6660 | 4.0 | 16.0 | 8.0 | Wheat middlings, not exceeding mill's run of ground cleaned wheat screenings | |
| Everett, Aughenbaugh & Company, Waseca, Minn. Eaco Winged Horse Mixed Feed ----- | 4397 | 3.0 | 15.0 | 12.0 | Wheat bran, wheat middlings | |
| E-A-CO Wheat Middlings and Ground Screenings ----- | 5440 | 3.0 | 15.0 | 10.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| E-A-CO Wheat Bran with Ground Screenings ----- | 6024 | 3.0 | 14.0 | 12.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| E-A-CO Mixed Feed ----- | 9410 | 3.0 | 15.0 | 12.0 | Wheat bran, middlings, ground wheat screenings not to exceed mill run | |
| Ewing Mill Company, Ewing, Ind. Ewing Mill Co's Mixed Feed ----- | 2497 | 3.8 | 14.0 | 10.0 | Wheat bran, shorts | |
| Fairplay Feed Mills, Linton, Ind. Feed Meal ----- | 6503 | 2.5 | 7.0 | 5.0 | Corn feed meal | |
| Farmers Elevator Company, The, Jamestown, Ind. Corn Feed Meal ----- | 8867 | 2.5 | 7.5 | 5.0 | Corn feed meal | |
| Mixed Bran & Screenings ----- | 8868 | 3.0 | 13.5 | 10.0 | Wheat bran, corn bran, ground wheat screenings | |
| Wheat Middlings & Screenings ----- | 9135 | 3.0 | 13.0 | 7.0 | Wheat middlings, ground wheat screenings | |
| Mixed Feed ----- | 9136 | 3.0 | 13.0 | 10.0 | Wheat bran, middlings, ground wheat screenings, corn bran | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Farmers Feed Store, Borden, Ind. | | | | | | |
| Wheat Bran ----- | 1093 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Wheat Shorts ----- | 1094 | 4.0 | 14.0 | 8.0 | Wheat shorts | |
| Mixed Feed ----- | 5261 | 4.0 | 14.0 | 9.0 | Wheat bran, middlings, ground wheat screenings | |
| Farmers Grain & Milling Company, Union City, Ind. | | | | | | |
| Wheat Middlings & Screenings ----- | 8259 | 2.5 | 12.5 | 7.0 | Wheat middlings, ground wheat screenings | |
| Farmers Mill, The, Huntingburg, Ind. | | | | | | |
| Farmers Mixed Feed ----- | 9133 | 3.0 | 13.0 | 14.0 | Wheat bran, shorts, corn bran, rye bran, rye shorts, crushed wheat screenings, mill sweepings, wheat scourings | |
| Farmers Mill & Elevator Company, Columbia City, Ind. | | | | | | |
| Chop Feed ----- | 8950 | 3.0 | 8.0 | 10.0 | Corn, oats, rye, barley, corn feed meal | |
| Mixed Bran & Screenings ----- | 8951 | 3.0 | 13.0 | 11.0 | Wheat bran, corn bran, ground wheat screenings | |
| Wheat Middlings & Screenings ----- | 8952 | 2.5 | 12.0 | 7.0 | Wheat middlings, ground wheat screenings | |
| Farmers Milling & Elevator Company, Veedersburg, Ind. | | | | | | |
| Wheat Bran ----- | 5000 | 3.0 | 12.0 | 14.0 | Wheat bran | |
| No. 1 Mixed Feed ----- | 5598 | 4.0 | 14.0 | 10.0 | Wheat bran, middlings | |
| Wheat Shorts ----- | 7577 | 2.0 | 12.0 | 10.0 | Wheat shorts | |
| No. 2 Mixed Feed ----- | 9321 | 2.0 | 8.0 | 10.0 | Rye bran, rye middlings | |
| Farmland City Flour Mills, The, Farmland, Ind. | | | | | | |
| Wheat Shorts ----- | 1658 | 4.0 | 14.0 | 7.0 | Wheat shorts | |
| Wheat Bran ----- | 1659 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Feed Products Milling Company, Chicago, Ill. | | | | | | |
| Corn Feed Meal ----- | 5954 | 2.7 | 8.5 | 5.0 | Corn feed meal | |
| Felknor, W. A., Prospect, Ind. | | | | | | |
| Corn Bran ----- | 9237 | 2.5 | 7.0 | 10.0 | Corn bran | |
| Ferger Grain Company, The, Cincinnati, Ohio | | | | | | |
| Nutritia Winter Wheat Bran and Screenings.. | 8392 | 4.0 | 14.5 | 10.0 | Wheat bran, 3% ground wheat screenings | |
| Nutritia Rye Middlings and Screenings..... | 8393 | 3.0 | 15.0 | 7.0 | Rye middlings, 3% ground rye screenings | |
| Nutritia Winter Wheat Middlings and Screenings ----- | 8394 | 3.5 | 15.0 | 10.0 | Wheat middlings, 3% ground wheat screenings | |
| Fette, Nicholas H., New Alsace, Ind. | | | | | | |
| Fette's Cleaned Wheat Middlings ----- | 2603 | 3.2 | 13.8 | 7.0 | Wheat middlings | |
| Fette's Cleaned Wheat Bran ----- | 2604 | 3.5 | 14.0 | 10.0 | Wheat bran | |
| Fisher Bros., Evansville, Ind. | | | | | | |
| Wheat Middlings and Screenings..... | 8715 | 4.0 | 14.0 | 9.0 | Wheat middlings, ground wheat screenings | |
| Wheat Bran with Screenings ----- | 8718 | 3.5 | 13.0 | 13.0 | Wheat bran, ground wheat screenings | |
| Mixed Bran, Middlings and Wheat Screenings.. | 8876 | 3.5 | 14.0 | 13.0 | Wheat bran, middlings, whole wheat screenings | |
| Rye Mixed Feed & Ground Rye Screenings.... | 9213 | 3.0 | 13.6 | 11.0 | Rye bran, rye middlings, ground rye screenings | |
| Diamond Corn and Oats Chops ----- | 9281 | 3.5 | 9.0 | 14.0 | Corn, oats | |
| Fisher & Fallgatter, Waupaca, Wis. | | | | | | |
| Rye Feed ----- | 8822 | 3.0 | 15.0 | 8.0 | Rye bran, rye middlings | |
| Flater, Joda, Alfordsville, Ind. | | | | | | |
| Joda Flater Wheat Bran ----- | 576 | 3.7 | 14.0 | 10.0 | Wheat bran | |
| Joda Flater Wheat Middlings ----- | 577 | 4.0 | 14.0 | 7.0 | Wheat middlings | |
| Flat Rock Cave Mills, Shelbyville, R. R. 3, Ind. | | | | | | |
| Wheat Bran ----- | 1350 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Shorts ----- | 1351 | 4.0 | 14.0 | 8.0 | Wheat shorts | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Fohl & Son, Casper, Cedar Grove, Ind. | | | | | |
| Wheat Middlings ----- | 8418 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Mixed Feed ----- | 8419 | 3.8 | 14.0 | 11.0 | Wheat bran, corn bran, ground wheat screenings |
| Follett & Company, R. J., Carmel, Ind. | | | | | |
| Mixed Feed ----- | 3163 | 3.7 | 13.0 | 10.0 | Wheat bran, shorts, corn bran |
| Forest Park Mills, North Terre Haute, Ind. | | | | | |
| Mill Feed ----- | 5817 | 3.8 | 3.8 | 6.0 | Wheat bran, middlings, corn bran, ground wheat screenings |
| Corn Feed Meal ----- | 7927 | 2.5 | 7.5 | 5.0 | Corn feed meal |
| Corn Bran ----- | 9227 | 3.8 | 7.0 | 12.0 | Corn bran |
| Fornax Milling Company, Decatur, Ind. | | | | | |
| Wheat Middlings, Corn Bran and Ground Wheat Screenings ----- | 9143 | 4.5 | 15.0 | 9.0 | Wheat middlings, corn bran, ground wheat screenings not exceeding mill run |
| Fortville Milling Company, Fortville, Ind. | | | | | |
| Fortville Milling Co's Corn & Oats Chop----- | 1230 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Fourteen Mile Valley Mills, R. R. 2, Lexington, Ind. | | | | | |
| Mixed Middlings and Sweepings ----- | 3879 | 2.5 | 13.0 | 8.0 | Wheat middlings, sweepings |
| Wheat Bran and Sweepings ----- | 5303 | 3.8 | 14.0 | 10.0 | Wheat bran, sweepings |
| Germ Middlings and Sweepings ----- | 5304 | 2.5 | 14.0 | 9.0 | Wheat middlings, sweepings |
| Fowler, A., Pittsboro, Ind. | | | | | |
| Corn & Oats Chop ----- | 2648 | 3.5 | 9.0 | 9.0 | Corn, oats |
| Fredericksburg Milling Company, The, Fredericksburg, Ind. | | | | | |
| Wheat Shorts ----- | 2280 | 3.0 | 13.0 | 7.0 | Wheat shorts |
| Blue River Mixed Feed ----- | 3668 | 3.0 | 12.0 | 11.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Freed & Lewis, Campbellsburg, Ind. | | | | | |
| Mixed Feed ----- | 6062 | 3.0 | 13.0 | 10.0 | Wheat bran, middlings, corn bran |
| Freeport Roller Mills, Freeport, Ind. | | | | | |
| H. Balting's Composition Feed ----- | 406 | 3.8 | 14.0 | 10.0 | Wheat bran, shorts, middlings, wheat screenings, corn bran |
| Friedrich & Son, C. W., Dyer, Ind. | | | | | |
| Buckwheat Feed ----- | 2713 | 1.7 | 7.7 | 30.0 | Buckwheat hulls, middlings |
| Rye Mixed Feed ----- | 2715 | 2.0 | 12.0 | 10.0 | Rye bran, rye middlings |
| Mixed Feed ----- | 2716 | 3.5 | 14.0 | 12.0 | Wheat bran, middlings, chaff |
| Friendship Milling Company, Friendship, Ind. | | | | | |
| Shorts ----- | 960 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Wheat Bran ----- | 4379 | 3.5 | 14.0 | 9.5 | Wheat bran |
| Fuhrer-Ford Milling Company, Mt. Vernon, Ind. | | | | | |
| Mixed Feed—Wheat Bran, Middlings and Screenings ----- | 2386 | 3.9 | 14.0 | 9.5 | Wheat bran, middlings, ground wheat screenings |
| Wheat Middlings ----- | 4682 | 3.5 | 14.0 | 6.3 | Wheat middlings |
| Wheat Bran & Screenings ----- | 8793 | 3.7 | 14.0 | 9.0 | Wheat bran, mill run ground screenings |
| Wheat Shorts ----- | 8794 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Silver Feed ----- | 9101 | 3.8 | 15.8 | 12.0 | Wheat bran, shorts, ground wheat screenings not exceeding mill run |
| Fulks, Willard, Stonehead, Ind. | | | | | |
| Fulks Mixed Feed ----- | 7113 | 3.5 | 14.0 | 8.0 | Wheat bran, middlings |
| Fyke Milling Company, LaGrange, Ind. | | | | | |
| Wheat Middlings & Screenings ----- | 6422 | 3.5 | 13.5 | 10.0 | Wheat middlings, ground wheat screenings |
| Wheat Bran & Screenings ----- | 6423 | 3.5 | 13.5 | 10.0 | Wheat bran, ground wheat screenings |
| Gandy & Company, O., South Whitley, Ind. | | | | | |
| Chop Feed ----- | 3927 | 3.0 | 8.5 | 8.0 | Corn, oats, corn feed meal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Gard, Geo. N., Schererville, Ind. Chopped Feed ----- | 6946 | 3.0 | 9.0 | 6.0 | | Corn, oats |
| Garland Milling Company, Greensburg, Ind. Garland Bran & Screenings ----- | 7279 | 3.7 | 15.0 | 10.9 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Garland Mixed Feed ----- | 7280 | 4.0 | 15.5 | 9.4 | | Wheat bran, middlings, cleanings, ground wheat screenings not exceeding mill run |
| Garland Middlings and Screenings ----- | 7281 | 4.3 | 16.5 | 7.9 | | Wheat middlings, ground wheat screenings not exceeding mill run |
| Rye Mixed Feed & Ground Rye Screenings---- | 9235 | 3.0 | 17.0 | 8.0 | | Rye bran, rye middlings, mill run ground rye screenings |
| Garrett & Funk, Liberty Center, Ind. Ship Stuff ----- | 1561 | 3.8 | 14.0 | 10.0 | | Wheat bran, middlings |
| Wheat Bran & Middlings ----- | 5123 | 2.5 | 12.5 | 10.0 | | Wheat bran, middlings |
| Garrett Elevator Company, Garrett, Ind. Ground Mill Feed ----- | 9071 | 3.0 | 10.0 | 10.0 | | Corn, oats, rye, barley, whole screenings from wheat, oats, rye and barley |
| Gary Supply Company, Gary, Ind. Wheat Middlings ----- | 1379 | 4.0 | 14.0 | 10.0 | | Wheat middlings |
| Mixed Feed ----- | 2743 | 3.9 | 14.0 | 11.0 | | Wheat bran, screenings |
| Gaston Roller Mill, Gaston, Ind. Wheat Bran & Middlings ----- | 5508 | 3.0 | 13.0 | 10.0 | | Wheat bran, middlings |
| Wheat Middlings ----- | 5509 | 2.0 | 12.0 | 7.0 | | Wheat middlings |
| Geneva Milling & Grain Company, Geneva, Ind. Miller's Wheat Bran ----- | 3169 | 3.3 | 14.0 | 10.0 | | Wheat bran |
| Shorts & Middlings ----- | 7527 | 2.5 | 13.0 | 8.0 | | Wheat shorts, middlings |
| Mixed Feed ----- | 9263 | 3.0 | 13.0 | 10.0 | | Wheat bran, middlings, corn bran |
| Gentryville Roller Mills, Gentryville, Ind. Gentryville Mixed Feed ----- | 3507 | 3.5 | 13.5 | 11.0 | | Wheat bran, middlings, screenings |
| Gibson Live Stock & Feed Co., Princeton, Ind. Pilgrim Corn & Oats Chop ----- | 9122 | 2.5 | 7.0 | 9.0 | | Corn, oats |
| Gilman, S. B., Summitville, Ind. Gilman's Mixed Feed ----- | 3216 | 3.7 | 12.5 | 12.0 | | Wheat bran, middlings, corn bran |
| Glen Echo Mills, Indianapolis, Ind. Bower's Chop ----- | 1086 | 3.5 | 8.0 | 7.0 | | Corn, oats |
| Corn Bran ----- | 4515 | 2.4 | 9.0 | 13.0 | | Corn bran |
| Corn Feed Meal (Siftings from Cracked Corn) | 5637 | 2.0 | 7.0 | 8.0 | | Corn feed meal |
| Globe Mills, The, Fort Wayne, Ind. The Globe Mills Wheat Bran ----- | 425 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| The Globe Mills Wheat Shorts ----- | 426 | 4.0 | 14.0 | 8.0 | | Wheat shorts |
| The Globe Mills Corn & Oats Chop ----- | 427 | 3.9 | 9.5 | 6.0 | | Corn, oats |
| Goodrich Bros. Hay & Grain Company, Winchester, Ind. Climax Rye Middlings with Screenings----- | 7841 | 3.0 | 14.0 | 11.0 | | Rye middlings, ground rye screenings not exceeding mill run |
| Goshen Milling Company, The, Goshen, Ind. Bran ----- | 66 | 3.7 | 15.4 | 9.5 | | Wheat bran |
| Mixed Bran ----- | 1504 | 3.8 | 14.0 | 11.0 | | Wheat bran, corn bran |
| "A" Mixed Feed ----- | 3155 | 3.8 | 13.5 | 11.5 | | Wheat bran, ground wheat screenings, corn bran |
| Chop Feed ----- | 3238 | 3.7 | 9.8 | 4.5 | | Corn, oats |
| Island Park Chop ----- | 5923 | 3.0 | 8.5 | 7.0 | | Corn, oats, rye |
| Wheat Middlings and Ground Wheat Screenings ----- | 7471 | 3.2 | 13.5 | 7.0 | | Wheat middlings, ground wheat screenings |
| Goshen Milling Co's Mixed Feed ----- | 3064 | 4.0 | 14.0 | 10.0 | | Wheat bran, middlings, ground wheat screenings |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Goshen Milling Company, The, Goshen, Ind. Wheat Bran and Ground Wheat Screenings---- | 9129 | 3.5 | 14.5 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Corn Mill Feed ----- | 9273 | 3.5 | 8.5 | 5.0 | Corn bran, corn meal |
| Goshorn, Jesse, Washington, Ind. Mixed Feed ----- | 6840 | 3.0 | 10.0 | 9.0 | Corn, wheat bran, ground wheat screenings |
| Chop Feed ----- | 7168 | 2.8 | 8.7 | 7.0 | Corn, oats, rye, corn feed meal |
| Gotto, O. W., Michigan City, Ind. Chop Feed ----- | 6885 | 3.2 | 9.0 | 8.0 | Corn, oats, corn feed meal |
| Wheat Bran and Screenings ----- | 8403 | 3.5 | 14.0 | 10.0 | Wheat bran, whole and ground wheat screenings |
| Graft, C. V., Winchester, Ind. Wheat Bran ----- | 3484 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Corn Bran ----- | 3833 | 3.5 | 8.5 | 10.0 | Corn bran |
| Bran & Middlings ----- | 3904 | 4.0 | 14.0 | 10.0 | Wheat bran, middlings |
| Graft Wheat Middlings ----- | 5097 | 3.0 | 14.0 | 7.0 | Wheat middlings |
| Great Northern Flour Mills Company, Minneapolis, Minn. Wheat Bran with Ground Screenings not Exceeding Mill Run ----- | 7486 | 4.0 | 14.5 | 12.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Wheat Middlings-- ----- | 7487 | 5.0 | 15.0 | 9.5 | Wheat middlings |
| Green Bros. & Oldfather, Warsaw, Ind. Wheat Bran ----- | 7919 | 3.5 | 14.0 | 12.0 | Wheat bran |
| Wheat Middlings ----- | 8309 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Greenfield Mills, Greenfield Mills, Ind. Mixed Feed ----- | 2412 | 4.0 | 14.0 | 10.0 | Wheat bran, middlings |
| Greenfield Milling Company, Greenfield, Ind. Mixed Feed ----- | 4468 | 3.0 | 15.0 | 10.0 | Wheat bran, shorts |
| Bran ----- | 4439 | 3.0 | 15.0 | 10.0 | Wheat bran |
| Shorts ----- | 4470 | 3.0 | 15.0 | 8.0 | Wheat shorts |
| Corn Bran ----- | 5140 | 2.0 | 6.0 | 13.0 | Corn bran |
| Corn Feed Meal ----- | 7540 | 2.5 | 7.0 | 6.0 | Corn feed meal |
| Griffin & Dix, Terre Haute, Ind. Chop ----- | 893 | 3.9 | 9.0 | 5.0 | Wheat bran, corn, oats |
| Gross, L. J., Sandborn, Ind. ¹² Wheat Shorts ----- | 4267 | 3.5 | 14.0 | 7.4 | Wheat shorts |
| Habig Bros., Indianapolis, Ind. Habigs Corn Feed Meal ----- | 7844 | 1.8 | 8.0 | 6.0 | Corn feed meal |
| Hales & Edwards Company, Chicago, Ill. Wheat Bran with Ground Screenings (Not exceeding Mill Run) ----- | 7509 | 3.0 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Wheat Middlings (With Screenings not exceeding Mill Run) ----- | 7643 | 3.5 | 14.0 | 12.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Wheat Middlings ----- | 8476 | 3.0 | 15.0 | 7.0 | Wheat middlings |
| Hall Milling Company, W. C., Brazil, Ind. Hall's Wheat Bran ----- | 412 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Hall's Bran & Screenings ----- | 3806 | 3.0 | 13.0 | 9.0 | Wheat bran, ground wheat screenings |
| Hall's Wheat Shorts ----- | 5023 | 2.0 | 13.0 | 8.0 | Wheat shorts |
| Corn Feed Meal ----- | 5131 | 3.0 | 7.0 | 5.0 | Corn feed meal |
| Hall's Mixed Feed ----- | 9162 | 3.5 | 14.0 | 10.0 | Wheat bran, wheat middlings, ground wheat screenings not exceeding mill run |
| Hammel Milling Company, Fremont, Ind. Wheat Bran ----- | 3154 | 3.8 | 14.0 | 12.0 | Wheat bran |
| Wheat Middlings ----- | 3578 | 4.0 | 14.0 | 8.0 | Wheat middlings |

¹² Succeeded by Walker & Crane

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Hampton, W. D., Worthington, Ind. ¹³ | | | | | |
| Wheat Bran ----- | 1124 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Mixed Feed ----- | 1788 | 3.3 | 11.0 | 5.0 | Wheat, corn, ground wheat screenings |
| Wheat Shorts ----- | 2220 | 2.3 | 12.8 | 8.0 | Wheat shorts |
| Corn Bran ----- | 3673 | 4.0 | 7.8 | 13.0 | Corn bran |
| Hamilton & Kellner, Rensselaer, Ind. ¹⁴ | | | | | |
| "A" Chop Feed ----- | 5087 | 3.0 | 8.0 | 9.0 | Corn, oats, corn feed meal |
| Hanks Company, The Howard H., Chicago, Ill. | | | | | |
| Wheat Bran ----- | 5555 | 3.0 | 14.0 | 11.0 | Wheat bran |
| Corn Feed Meal ----- | 6101 | 2.7 | 8.5 | 5.0 | Corn feed meal |
| Wheat Middlings and Ground Wheat Screenings ----- | 6581 | 3.7 | 14.0 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Wheat Bran & Screenings ----- | 6970 | 3.0 | 14.0 | 11.0 | Wheat bran, ground wheat screenings |
| Hanna, L. G., Logansport, Ind. | | | | | |
| Hanna's Corn & Oats Chop ----- | 3535 | 3.5 | 9.0 | 9.0 | Corn, oats |
| Hanover Star Milling Company, Germantown, Ill. | | | | | |
| Hanover Star Milling Co. Winter Wheat Bran ----- | 743 | 3.7 | 14.0 | 10.0 | Wheat bran |
| Hanover Star Milling Co. Wheat Middlings----- | 744 | 5.0 | 15.4 | 5.0 | Wheat middlings |
| Hardin & Son, Ladoga, Ind. | | | | | |
| Hardin & Son's Mill Feed ----- | 3482 | 2.5 | 14.0 | 10.0 | Wheat bran, shorts, middlings, low grade flour, corn bran |
| Harmon & Wallace Milling Company, Owensville, Ind. | | | | | |
| Royal Mixed Feed ----- | 7559 | 3.5 | 13.0 | 10.0 | Wheat bran, middlings, whole and ground wheat screenings, corn bran, dust collector dust, chaff |
| Harris & Bell, Montgomery, Ind. ¹⁵ | | | | | |
| Wheat Bran, Screenings and Corn Bran----- | 3938 | 3.6 | 12.0 | 10.0 | Wheat bran, crushed wheat screenings, corn bran |
| Mixed Feed ----- | 7167 | 3.0 | 13.0 | 10.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Fine Mixed Mill Feed ----- | 8143 | 2.5 | 12.5 | 9.0 | Wheat middlings, ground wheat screenings, corn feed meal |
| Harris Milling Company, Greencastle, Ind. | | | | | |
| Harris' Middlings ----- | 211 | 3.6 | 14.5 | 7.5 | Wheat middlings |
| Harris' Mixed Feed ----- | 212 | 3.5 | 14.1 | 10.0 | Wheat bran, middlings, ground wheat screenings |
| Harris' Cracked Corn Siftings ----- | 5139 | 3.2 | 8.0 | 5.6 | Corn feed meal |
| Corn Bran ----- | 7667 | 3.5 | 7.0 | 14.0 | Corn bran |
| Harris' Rye Mixed Feed ----- | 9389 | 2.0 | 12.0 | 5.0 | Rye bran, rye middlings |
| Harris Milling Company, Montgomery, Ind. | | | | | |
| Wheat Bran, Screenings and Corn Bran----- | 8745 | 2.5 | 12.0 | 10.0 | Wheat bran, crushed wheat screenings, corn bran |
| Fine Mixed Mill Feed ----- | 8746 | 2.5 | 12.5 | 9.0 | Wheat middlings, ground wheat screenings, corn feed meal |
| Hartford City Grain & Milling Company, Hartford City, Ind. | | | | | |
| "Cooley's Corn & Oat Chop" ----- | 340 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Cooley's Mixed Feed ----- | 2371 | 3.0 | 12.0 | 11.0 | Wheat bran, middlings, whole wheat screenings |
| Hartman & Sons, Louis, New Albany, Ind. | | | | | |
| Mixed Feed ----- | 1979 | 3.5 | 14.0 | 10.0 | Wheat bran, middlings, ground corn screenings |
| Hartz, Bernard, Chrisney, Ind. | | | | | |
| Corn Feed Meal ----- | 8487 | 2.5 | 7.0 | 5.0 | Corn feed meal |

¹³ Succeeded by Hayes Milling Co.¹⁴ Succeeded by Kellner & Callahan¹⁵ Succeeded by Harris Milling Co.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Hartz & Carey Milling Company, Chrisney, Ind. Shipstuff ----- | 8685 | 4.0 | 16.0 | 7.0 | Wheat shorts, middlings, reddog flour | |
| Mixed Feed ----- | 8686 | 4.0 | 16.0 | 7.0 | Wheat bran, shorts, ground wheat screenings, corn bran | |
| Bran and Screenings ----- | 8687 | 3.8 | 14.0 | 10.0 | Wheat bran, corn bran, ground wheat screenings | |
| Harvest City Mills, R. R. 28, Edinburg, Ind. Mixed Feed ----- | 2563 | 3.5 | 13.5 | 12.0 | Wheat bran, middlings, corn bran | |
| Havens, P. W., Hartford City, Ind. Havens' Chop Feed ----- | 7688 | 3.5 | 8.5 | 8.0 | Corn, oats, corn feed meal | |
| Haynes Milling Company, The, Portland, Ind. Wheat Bran ----- | 92 | 3.7 | 14.0 | 10.0 | Wheat bran | |
| Corn & Oats Chop Feed ----- | 93 | 3.9 | 9.5 | 6.0 | Corn, oats | |
| Bran ----- | 4094 | 3.5 | 15.2 | 9.0 | Wheat bran, corn bran | |
| Wheat Middlings ----- | 4389 | 3.0 | 14.0 | 7.0 | Wheat middlings | |
| "Haynes Mixed Feed" ----- | 7893 | 3.5 | 15.0 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Haynes Special Mixed Feed ----- | 7894 | 3.5 | 14.5 | 10.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Mary Putney Chop Feed ----- | 8542 | 3.2 | 9.0 | 6.5 | Corn, oats, corn feed meal | |
| Corn Feed Meal ----- | 9246 | 5.0 | 8.0 | 10.0 | Corn feed meal | |
| Hays Milling Company, Worthington, Ind. Wheat Bran ----- | 9037 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Wheat Shorts ----- | 9038 | 2.3 | 12.8 | 8.0 | Wheat shorts | |
| Haysville Milling Company, Haysville, Ind. Mixed Feed ----- | 6020 | 3.0 | 13.0 | 10.0 | Wheat bran, middlings, ground wheat screenings | |
| Wheat Shorts ----- | 6439 | 2.0 | 12.0 | 6.0 | Wheat shorts | |
| Hazleton Flour Mills, The, Hazleton, Ind. Mixed Feed ----- | 7174 | 3.0 | 12.0 | 11.0 | Wheat bran, corn bran, ground wheat screenings, dust collector dust, wheat chaff | |
| Wheat Shorts ----- | 7475 | 3.0 | 14.0 | 7.0 | Wheat shorts | |
| Heaton, E. H., R. R. 12, Indianapolis, Ind. Mixed Feed ----- | 5931 | 3.0 | 13.5 | 11.0 | Wheat bran, middlings | |
| Corn Bran ----- | 5932 | 3.0 | 6.0 | 13.0 | Corn bran | |
| Heitschmidt, A. C., Michigan City, Ind. Chop Feed ----- | 5672 | 3.0 | 9.0 | 8.0 | Corn, oats, corn feed meal | |
| Hendrix & Abel, Putnamville, Ind. Corn & Oats Chop ----- | 9357 | 3.0 | 9.0 | 8.0 | Corn, oats | |
| Henline, M. S., Ossian, Ind. Corn & Oats Chop ----- | 3263 | 3.5 | 9.0 | 8.0 | Corn, oats | |
| Mixed Feed ----- | 6806 | 2.5 | 12.5 | 10.0 | Wheat bran, middlings, corn bran | |
| Herbert & Sons, Joseph, Millhousen, Ind. Herbert's Mixed Feed ----- | 7101 | 4.0 | 14.0 | 7.0 | Wheat bran, middlings, shorts, corn bran | |
| Hering & King, R. R. 5, Shelbyville, Ind. Mixed Bran and Screenings ----- | 7219 | 3.2 | 13.0 | 12.0 | Wheat bran, corn bran, ground wheat screenings | |
| Hershman & Son, Tipton, Ind. Chop Feed ----- | 4898 | 3.2 | 8.7 | 14.0 | Corn, oats, rye, corn feed meal | |
| Hills, H. B., Fremont, Ind. Wheat Bran ----- | 1653 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Wheat Middlings ----- | 1654 | 4.0 | 14.0 | 7.0 | Wheat middlings | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Hitch, J. H., Princeton, Ind. Corn Bran ----- | 9334 | 3.0 | 6.0 | 13.0 | Corn bran |
| Hoag, N. S., Huntington, Ind. Chop Feed ----- | 8588 | 2.8 | 8.5 | 9.0 | Corn, oats, corn feed meal |
| Hogan Milling Company, The, Junction City, Kansas. Bran and Screenings ----- | 7972 | 3.5 | 14.5 | 10.0 | Wheat bran, whole wheat screenings |
| Holland, Thos. A., Fort Ritner, Ind. Hollands Mixed Feed ----- | 8078 | 3.5 | 13.0 | 10.0 | Wheat bran, shorts, corn bran, whole wheat screenings |
| Holland, W. R., Shelbyville, R. R. 3, Ind. Wheat Middlings ----- | 5459 | 3.0 | 12.5 | 7.0 | Wheat middlings |
| Mixed Bran ----- | 5460 | 3.0 | 13.0 | 14.0 | Wheat bran, corn bran |
| Holland Mills, The, Holland, Ind. Mixed Feed ----- | 7131 | 3.0 | 13.0 | 11.0 | Wheat bran, middlings, crushed wheat screenings, corn bran |
| Wheat Middlings ----- | 8200 | 2.0 | 12.0 | 7.0 | Wheat middlings |
| Holliday & Son, John, Greentown, Ind. Chop Feed ----- | 6188 | 3.0 | 9.0 | 5.0 | Corn, oats |
| Hollingsworth, S. P., Russiaville, Ind. Corn & Oats Chop ----- | 1518 | 3.9 | 9.0 | 9.0 | Corn, oats |
| Hollingsworth Wheat Shorts ----- | 2941 | 2.5 | 13.0 | 7.0 | Wheat shorts |
| Hollingsworth Mixed Feed ----- | 7829 | 3.8 | 14.0 | 10.0 | Wheat bran, shorts, corn bran |
| Holton Milling Company, The, Holton, Ind. Corn & Oats Chop ----- | 3290 | 3.5 | 9.0 | 8.0 | Corn, oats |
| A. Mixed Feed ----- | 7404 | 3.5 | 14.0 | 10.0 | Wheat bran, shorts, ground wheat screenings, corn bran |
| Home Grain Company, LaGrange, Ind. Middlings ----- | 8573 | 4.0 | 16.5 | 6.0 | Wheat middlings |
| Home Mill & Grain Company, Mt. Vernon, Ind. Corn Bran ----- | 2598 | 5.0 | 8.0 | 13.0 | Corn bran |
| Mixed Feed ----- | 3237 | 3.2 | 14.4 | 10.5 | Wheat bran, ground wheat screenings |
| Wheat Middlings & Screenings ----- | 7686 | 4.0 | 16.0 | 6.0 | Wheat middlings, ground wheat screenings |
| Hornung, J. M., Greensburg, Ind. Middlings ----- | 415 | 3.8 | 14.2 | 9.7 | Wheat middlings |
| Wheat Bran ----- | 417 | 3.7 | 14.1 | 9.7 | Wheat bran |
| Wheat Bran & Screenings ----- | 2577 | 3.7 | 14.1 | 11.0 | Wheat bran, ground wheat screenings |
| A. Mixed Feed ----- | 8864 | 3.5 | 14.0 | 10.0 | Wheat bran, wheat middlings, ground wheat screenings |
| Hosmer Milling Company, O. I., Leavenworth, Ind. O. I. Hosmer Mixed Feed ----- | 7822 | 3.4 | 14.0 | 10.0 | Wheat bran, middlings, shorts, whole wheat screenings, corn bran |
| Hubbard, J. W., Monrovia, Ind. Mixed Feed ----- | 7550 | 3.0 | 13.0 | 11.0 | Wheat bran, corn bran, ground wheat screenings |
| Wheat Middlings ----- | 7551 | 3.5 | 14.0 | 8.0 | Wheat middlings |
| Hubbard Milling Company, Mankota, Minn. Standard Fine Middlings & Ground Screenings ----- | 8538 | 5.0 | 16.0 | 11.5 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Pure Flakey Bran ----- | 8603 | 3.0 | 15.0 | 13.0 | Wheat bran |
| White Flour Middlings ----- | 8607 | 5.5 | 18.0 | 5.0 | Wheat middlings |
| Sterling Red Dog ----- | 8608 | 4.0 | 17.0 | 4.0 | Low grade wheat flour containing the finer particles of wheat bran |
| Huffman, L. R., R. R. 5, Valparaiso, Ind. Buckwheat Mixed Feed ----- | 4823 | 2.5 | 12.0 | 25.0 | Buckwheat middlings, hulls |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Hughes, John F., Elwood, Ind. Rye Middlings and Ground Screenings----- | 8012 | 3.0 | 14.0 | 7.0 | Rye middlings, ground rye screenings |
| Hunsicker & Bender, Bluffton, Ind. Mixed Bran ----- | 1558 | 4.0 | 14.0 | 11.0 | Wheat bran, corn bran |
| "A. Wheat Shorts" ----- | 1559 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Hunter & Company, O. L., Chicago, Ill. Calumet Mixed Feed ----- | 4960 | 3.0 | 13.0 | 10.0 | Wheat bran, middlings |
| Calumet Rye Feed ----- | 5352 | 3.0 | 14.0 | 7.0 | Rye bran, rye middlings |
| Calumet Bran with Ground Screenings not Exceeding Mill Run ----- | 6042 | 3.5 | 14.0 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Calumet Middlings with Ground Screenings not Exceeding Mill Run ----- | 6131 | 4.0 | 14.5 | 8.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Calumet Mixed Feed with Ground Screenings not Exceeding Mill Run ----- | 8841 | 4.8 | 15.3 | 10.4 | Wheat bran, wheat middlings, ground wheat screenings not exceeding mill run |
| Hunter-Robinson-Wenz Milling Company, St. Louis, Mo. Mixed Feed ----- | 5218 | 4.0 | 15.0 | 10.0 | Wheat bran, middlings, whole wheat screenings |
| Bran and Screenings ----- | 5219 | 4.0 | 14.5 | 9.5 | Wheat bran, whole wheat screenings |
| Middlings and Screenings ----- | 5220 | 4.0 | 15.0 | 6.0 | Wheat middlings, ground wheat screenings |
| Huntington Mill Company, Huntington, Ind. Bran ----- | 491 | 3.6 | 14.2 | 10.0 | Wheat bran |
| Mixed Feed ----- | 492 | 3.8 | 13.5 | 6.4 | Wheat bran, shorts, ground wheat screenings, corn bran |
| Bran and Shorts ----- | 493 | 3.9 | 14.2 | 9.5 | Wheat bran, shorts |
| Shorts ----- | 495 | 3.9 | 14.3 | 5.4 | Wheat shorts |
| Hurn Milling Company, W. D., New Salisbury, Ind. Mixed Feed ----- | 7959 | 3.5 | 13.0 | 11.0 | Wheat bran, corn bran, ground wheat screenings |
| Wheat Middlings ----- | 8089 | 3.5 | 13.0 | 7.0 | Wheat middlings |
| Hutchinson Flour Mills Company, The, Hutchinson, Kansas. Mill Run Bran ----- | 4995 | 3.5 | 15.5 | 9.0 | Wheat bran |
| Wheat Shorts ----- | 4996 | 4.0 | 15.5 | 6.0 | Wheat shorts |
| Fancy White Shorts ----- | 7835 | 3.0 | 14.0 | 3.5 | Wheat shorts |
| Wheat Shorts and Wheat Screenings not Exceeding Mill Run ----- | 7836 | 3.5 | 16.0 | 5.5 | Wheat shorts, ground wheat screenings not exceeding mill run |
| Wheat Bran and Wheat Screenings Not Exceeding Mill Run ----- | 7838 | 3.5 | 14.5 | 10.0 | Wheat bran, whole wheat screenings not exceeding mill run |
| Wheat Mixed Feed and Wheat Screenings----- | 7865 | 3.5 | 15.5 | 8.5 | Wheat bran, wheat shorts, whole wheat screenings not exceeding mill run |
| Ideal Milling & Grain Company, Ridgeville, Ind. Mixed Bran and Screenings ----- | 7353 | 2.5 | 12.5 | 10.0 | Wheat bran, corn bran, ground wheat screenings |
| Mixed Feed ----- | 7797 | 2.5 | 11.0 | 6.0 | Wheat shorts, middlings, corn feed meal |
| Igleheart Bros., Evansville, Ind. Pure Wheat Bran ----- | 5771 | 4.0 | 14.5 | 10.0 | Wheat bran |
| Pure Wheat Middlings & Screenings not Exceeding Mill Run ----- | 5772 | 5.0 | 16.0 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Pure Mixed Feed ----- | 5773 | 4.5 | 15.5 | 9.0 | Wheat bran, middlings, ground wheat screenings not exceeding mill run |
| Rye Mixed Feed ----- | 9141 | 3.0 | 13.6 | 11.0 | Rye bran, rye middlings, ground rye screenings |
| Ilene Grain Company, Ilene, Ind. Crax. Corn and Oats ----- | 8442 | 3.5 | 9.0 | 6.0 | Corn, oats |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Imbs Milling Company, J. F., Belleville, Ill. "Charm" Bran with Ground Wheat Screenings ----- | 7074 | 3.5 | 14.5 | 10.0 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Middlings and Ground Wheat Screenings Not in Excess to Mill Run ----- | 7195 | 4.0 | 15.0 | 5.0 | | Wheat middlings, ground wheat screenings |
| "Charm" Mixed Feed, (Wheat Bran, Wheat Middlings and Ground Wheat Screenings not to Exceed Mill Run) ----- | 8529 | 4.0 | 14.0 | 8.0 | | Wheat bran, middlings, ground wheat screenings not to exceed mill run |
| Imperial Mills, The, Cambridge City, Ind. Mixed Bran ----- | 1752 | 3.2 | 12.0 | 11.0 | | Wheat bran, corn bran |
| Wheat Middlings and Ground Screenings ----- | 7592 | 3.7 | 14.0 | 7.0 | | Wheat middlings, ground wheat screenings |
| Indiana Elevator Company, Indianapolis, Ind. ¹⁶ | | | | | | |
| Corn Bran ----- | 4940 | 3.5 | 8.0 | 13.0 | | Corn bran |
| Gold Medal Chop ----- | 5301 | 3.0 | 8.0 | 9.0 | | Corn, oats |
| Corn Feed Meal ----- | 7073 | 2.7 | 7.5 | 5.0 | | Corn feed meal |
| Indiana Flour Company, Terre Haute, Ind. Pure Wheat Bran ----- | 4932 | 3.0 | 14.0 | 10.0 | | Wheat bran |
| Pure Bran and Shorts ----- | 6190 | 3.5 | 14.0 | 6.5 | | Wheat bran, shorts |
| Pure Wheat Shorts ----- | 6191 | 4.0 | 15.0 | 6.5 | | Wheat shorts |
| Indiana Milling Company, Terre Haute, Ind. Wheat Bran & Mill Run Screenings ----- | 5908 | 3.8 | 14.0 | 10.0 | | Wheat bran, ground wheat screenings |
| Standard Middlings with Ground Screenings not Exceeding Mill Run ----- | 6787 | 4.0 | 14.5 | 11.0 | | Wheat middlings, ground wheat screenings not exceeding mill run |
| Sterling Mixed Feed ----- | 6824 | 3.0 | 10.0 | 16.0 | | Wheat bran, with ground wheat screenings not exceeding mill run, cob meal and ground corn |
| International Milling Company, New Prague, Minn. De-Pend-On Rye Middlings with Ground Screenings not exceeding mill run ----- | 9420 | 2.5 | 15.0 | 10.0 | | Rye middlings, ground rye screenings not exceeding mill run |
| Interstate Feed Association, Detroit, Mich. Interstate Standard Middlings and Screenings ----- | 8183 | 5.0 | 14.0 | 6.0 | | Wheat middlings, ground wheat screenings not exceeding mill run |
| Interstate Wheat Bran and Screenings ----- | 8342 | 4.0 | 14.0 | 11.0 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Iroquois Roller Mills, Rensselaer, Ind. Wheat Bran ----- | 6139 | 3.0 | 13.0 | 11.0 | | Wheat bran |
| Wheat Middlings ----- | 6140 | 2.5 | 12.0 | 7.0 | | Wheat middlings |
| Buckwheat Mixed Feed ----- | 6299 | 2.0 | 10.0 | 25.0 | | Buckwheat middlings, buckwheat hulls |
| Buckwheat Hulls ----- | 7115 | 1.5 | 6.8 | 33.0 | | Buckwheat hulls |
| Jackson & Smith, Roanoke, Ind. Corn and Oats Chop ----- | 4439 | 3.0 | 9.0 | 6.0 | | Corn, oats |
| Jacobson, Soren, Young America, Ind. Jacobsons Wheat Middling ----- | 385 | 4.0 | 14.0 | 7.0 | | Wheat middlings |
| Jacobsons Wheat and Corn Bran ----- | 2718 | 3.8 | 14.0 | 11.0 | | Wheat bran, corn bran |
| Jacobsons Mixed Feed ----- | 6359 | 3.5 | 14.0 | 10.0 | | Wheat bran, middlings, corn bran, ground wheat screenings not exceeding mill run |
| Jay Grain Company, The, Elwood, Ind. Chop Feed ----- | 7021 | 3.8 | 9.0 | 7.0 | | Corn, oats, corn feed meal |
| Jay Grain Company, The, Mulberry, Ind. Jay's Corn Bran ----- | 37 | 5.0 | 8.0 | 13.0 | | Corn bran |
| "Jay's" Wheat Bran & Shorts ----- | 7716 | 3.0 | 14.0 | 7.0 | | Wheat bran, shorts |
| Middlings and Ground Screenings not Exceeding Mill Run ----- | 9383 | 4.0 | 14.0 | 7.0 | | Wheat middlings, ground wheat screenings |
| Wheat Bran and Ground Screenings ----- | 9384 | 3.5 | 14.0 | 10.0 | | Wheat bran, ground wheat screenings |

¹⁶ Succeeded by Indiana Elevator

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------------------------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| J Street Milling Company, Laporte, Ind. Corn & Oats Chop Feed ----- Wheat Bran ----- White Middlings ----- | 760 762 5054 | 3.9 3.8 2.0 | 9.5 14.0 12.0 | 6.0 10.0 5.0 | Corn, oats Wheat bran Wheat middlings | |
| Jennison Company, W. J., Minneapolis, Minn. Wheat Flour Middlings with Ground Screen- ings not Exceeding Mill Run ----- Wheat Bran with Ground Screenings not Exceeding Mill Run ----- | 6038 6039 | 4.5 4.0 | 17.0 15.0 | 5.5 10.0 | Wheat middlings, ground wheat screenings not exceeding mill run Wheat bran, ground wheat screenings not exceeding mill run | |
| Johnston, S. E., Roll, Ind. Corn Feed Meal ----- | 8988 | 3.0 | 8.0 | 11.0 | Corn feed meal | |
| Johnston-Hicks Mill Company, Altamont, Ill. Johnston-Hicks Wheat Bran & Screenings---- | 3178 | 3.5 | 13.5 | 10.0 | Wheat bran, ground wheat screenings | |
| Johnston & Sons, C. H., Pinola, Ind. Wheat Bran ----- Wheat Middlings ----- Chop Feed ----- Mixed Feed ----- | 7391 7392 7666 7757 | 3.0 3.0 3.9 3.5 | 13.0 13.0 9.0 14.5 | 10.0 7.0 6.0 10.0 | Wheat bran Wheat middlings Corn, oats Wheat bran, middlings | |
| Jones, A. A., Churubusco, Ind. Wheat Bran ----- Wheat Middlings ----- | 8969 8970 | 3.0 3.0 | 13.0 13.0 | 10.0 7.0 | Wheat bran Wheat middlings | |
| Jones, G. W., Upland, Ind. Corn & Oats Chop ----- Jones Chop Feed ----- | 3212 6012 | 3.5 3.5 | 9.0 9.0 | 9.0 9.0 | Corn, oats Corn, oats, rye, corn feed meal | |
| Jones & Son, C. N., Wabash, Ind. Wheat Bran ----- Bran and Shorts ----- Wheat Middlings ----- | 4534 7733 8383 | 3.8 3.0 2.0 | 14.0 14.0 12.5 | 10.0 8.0 6.0 | Wheat bran Wheat bran, shorts Wheat middlings | |
| Jordan, Geo. M., Vincennes, Ind. Feed Meal ----- G. M. J. Bran & Screenings ----- G. M. J. Middlings & Screenings ----- G. M. J. Mixed Feed ----- | 7290 8310 8311 8703 | 2.5 3.8 4.0 3.5 | 7.5 14.5 15.0 15.0 | 5.0 10.0 9.0 10.0 | Corn feed meal Wheat bran, ground wheat screenings not exceeding mill run Wheat middlings, ground wheat screenings not exceeding mill run Wheat bran, wheat middlings, ground wheat screenings not exceed- ing mill run, salt | |
| Judson Creamery & Produce Company, North Judson, Ind. Wheat Bran & Screenings ----- Judson Wheat Middlings and Screenings---- | 8123 8496 | 3.5 4.0 | 14.0 14.5 | 11.0 10.0 | Wheat bran, ground wheat screenings Wheat middlings, ground wheat screenings not exceeding mill run | |
| Kamman, Frank W., Cross Plains, Ind. Shipstuff or Shorts ----- Bran ----- | 2359 2360 | 4.0 3.8 | 14.0 14.0 | 8.0 10.0 | Wheat shorts Wheat bran | |
| Kansas Milling Company, The, Wichita, Kans. Wheat Shorts ----- | 4646 | 4.0 | 16.5 | 5.2 | Wheat shorts | |
| Kasch, Chas. C., Logansport, Ind. Kasch's Chop Feed ----- | 5539 | 3.5 | 9.0 | 6.0 | Corn, oats, corn feed meal | |
| Katterjohn, A. F., Lynnville, Ind. A. F. Katterjohn's Wheat Bran ----- Katterjohns Shorts ----- Mixed Feed ----- | 487 6937 6938 | 3.7 3.4 4.0 | 14.0 14.0 14.0 | 10.0 7.0 7.0 | Wheat bran Wheat shorts Wheat bran, middlings | |
| Katterjohn, Q. F., Boonville, Ind. Wheat Shorts ----- Katterjohn's Mixed Feed ----- | 1039 2243 | 4.0 4.0 | 14.0 13.5 | 8.0 11.0 | Wheat shorts Wheat bran, ground wheat screen- ings, corn bran | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Katterjohn, Q. F., Boonville, Ind. Elkhorn Mixed Feed ----- | 3310 | 3.5 | 13.5 | 12.0 | Wheat bran, shorts, ground wheat screenings, corn bran |
| Corn Feed Meal ----- | 6852 | 2.5 | 7.5 | 5.0 | Corn feed meal |
| Kaw Milling Company, The, Topeka, Kansas Wheat Shorts ----- | 3826 | 4.0 | 13.6 | 6.0 | Wheat shorts |
| Mill Run and Screenings ----- | 6128 | 4.0 | 17.0 | 9.6 | Wheat bran, shorts, middlings, low grade flour, ground wheat screenings |
| Wheat Bran and Screenings ----- | 7935 | 4.0 | 16.0 | 9.6 | Wheat bran, not to exceed 8% ground wheat screenings |
| "Kaw Kaw" White Middlings ----- | 8083 | 3.0 | 14.5 | 3.5 | Wheat middlings |
| Kaw Kaw Shorts and Ground Screenings Not to Exceed 5% ----- | 8304 | 4.0 | 17.0 | 5.5 | Wheat shorts, ground wheat screenings not to exceed 5% |
| Kaw Kaw Bran & Scourings ----- | 8305 | 3.5 | 15.5 | 10.0 | Wheat bran, ground wheat scourings not to exceed 5% |
| Kaw Kaw Pure Middlings ----- | 8306 | 3.0 | 15.0 | 3.5 | Wheat middlings |
| Keene, A. C., Elkhart, Ind. Keene's Chop Feed ----- | 3281 | 3.5 | 9.0 | 8.0 | Corn, oats |
| Wheat Bran & Ground Screenings ----- | 7361 | 3.5 | 13.5 | 11.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings & Ground Screenings ----- | 7362 | 3.5 | 13.5 | 9.0 | Wheat middlings, ground wheat screenings |
| Kehlror Flour Mills Company, St. Louis, Mo. Neptune White Middlings ----- | 4191 | 4.0 | 17.0 | 4.0 | Wheat middlings |
| Palace Bran ----- | 5808 | 4.0 | 14.5 | 10.0 | Wheat bran |
| Rex Middlings and Ground Screenings ----- | 6682 | 4.0 | 16.0 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Kehlror's Millfeed ----- | 7508 | 4.0 | 15.0 | 8.0 | Wheat bran, middlings, ground wheat screenings not exceeding mill run |
| Keilman Company, The L., Dyer, Ind. Corn & Oats Chop ----- | 2493 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Kemper Mill & Elevator Company, Kansas City, Mo. Crown Shorts ----- | 2055 | 4.7 | 16.0 | 5.7 | Wheat shorts |
| Diamond Bran ----- | 2076 | 4.0 | 14.5 | 9.5 | Wheat bran |
| Crescent Middlings with Ground Screenings ----- | 6028 | 4.2 | 16.0 | 8.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Anchor Bran with Ground Screenings ----- | 6030 | 4.0 | 14.5 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Anchor Mixed Feed with Screenings Not Exceeding Mill Run ----- | 7248 | 4.0 | 16.0 | 10.0 | Wheat bran, shorts, ground wheat screenings |
| Crescent Mixed Feed and Screenings Not Exceeding Mill Run ----- | 7324 | 4.0 | 16.0 | 8.0 | Wheat bran, shorts, ground wheat screenings |
| Carnation Gray Middlings and Screenings Not Exceeding Mill Run ----- | 7325 | 4.3 | 16.0 | 8.0 | Wheat middlings, ground wheat screenings |
| Kennedy Bros., Crawfordsville, Ind. Chop Feed ----- | 5211 | 3.0 | 8.5 | 9.0 | Corn, oats, corn feed meal |
| Kennedy Milling Company, The Geo. W., Shelbyville, Ind. Middlings ----- | 2110 | 3.5 | 13.5 | 8.0 | Wheat middlings |
| Mixed Feed ----- | 2477 | 3.5 | 13.5 | 12.0 | Wheat bran, whole wheat screenings, corn bran |
| Corn Bran ----- | 7791 | 5.0 | 8.0 | 13.0 | Corn bran |
| Kennedy's Winter Wheat Bran ----- | 8201 | 3.5 | 16.0 | 10.0 | Wheat bran |
| Kennedy Milling Company, M. W., ¹⁷ La Fontaine, Ind. Chop Feed ----- | 6067 | 3.0 | 8.0 | 6.0 | Corn, oats, corn feed meal |
| Kent Milling Company, Kent, Ind. Kent Mixed Feed ----- | 3364 | 3.2 | 13.5 | 12.0 | Wheat bran, whole wheat screenings |
| Corn Feed Meal ----- | 6914 | 2.5 | 7.5 | 5.0 | Corn feed meal |

¹⁷ Succeeded by Hares Feed Mill

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Kent Milling Company, Kent, Ind. | | | | | | |
| Corn Bran | 6915 | 4.0 | 7.0 | 10.0 | | Corn bran |
| Wheat Middlings | 7649 | 3.8 | 14.0 | 7.0 | | Wheat middlings |
| Keplinger, Chas., Zanesville, Ind. ¹⁸ | | | | | | |
| Chop Feed | 844 | 4.0 | 10.0 | 5.0 | | Corn, oats |
| Keplinger's Chop | 3485 | 3.5 | 9.5 | 7.0 | | Corn, oats, corn feed meal |
| Mixed Bran | 3486 | 3.5 | 14.0 | 10.0 | | Wheat bran, corn bran |
| Kern & Sons, John B. A., Milwaukee, Wis. | | | | | | |
| Eagle Rye Middlings with Ground Screenings | | | | | | |
| Not Exceeding Mill Run | 7420 | 3.0 | 15.0 | 7.0 | | Rye middlings, ground rye screenings not exceeding mill run |
| Kidder Flour Mills, R. E., Kansas City, Mo. | | | | | | |
| Wheat Bran | 6132 | 3.5 | 14.5 | 10.0 | | Wheat bran |
| Wheat Shorts | 6133 | 4.0 | 15.0 | 6.0 | | Wheat shorts |
| Killian Elevator, The, Newberry, Ind. | | | | | | |
| Mixed Feed | 1196 | 3.5 | 8.5 | 8.0 | | Corn, wheat, ground wheat screenings, corn bran |
| Corn Feed Meal | 8139 | 2.5 | 7.5 | 6.0 | | Corn feed meal |
| Kingman Grain & Milling Company, Kingman, Ind. | | | | | | |
| Millfeed | 3156 | 3.0 | 14.0 | 10.0 | | Wheat bran, middlings, ground wheat screenings, corn bran, mill sweepings |
| Corn Feed Meal | 5607 | 2.5 | 7.5 | 7.0 | | Corn feed meal |
| Kirlin & Hammond, Ashley, Ind. | | | | | | |
| Wheat Middlings | 9400 | 4.0 | 14.0 | 7.0 | | Wheat middlings |
| Klemm, Geo. J., Milton, Ind. | | | | | | |
| Mixed Feed | 3465 | 3.5 | 13.0 | 11.0 | | Wheat bran, ground wheat screenings, corn bran |
| Wheat Middlings | 4733 | 2.0 | 10.0 | 7.0 | | Wheat middlings |
| "A" Mixed Feed | 4756 | 3.0 | 12.0 | 11.0 | | Wheat bran, middlings, ground wheat screenings, corn bran |
| Klondike Milling Company, Danville, Ind. | | | | | | |
| The Mill Run Mixed Feed | 2554 | 3.5 | 13.0 | 13.0 | | Wheat bran, middlings, ground wheat screenings, corn bran |
| Klondike Chop Feed | 4430 | 3.0 | 9.0 | 7.0 | | Corn, oats, corn feed meal |
| Corn Bran | 9016 | 2.5 | 6.0 | 10.0 | | Corn bran |
| Koenemann, Ed. F., Hoagland, Ind. | | | | | | |
| Corn & Oats Chop | 1682 | 3.9 | 9.5 | 6.0 | | Corn, oats |
| Kollar Flour & Feed Store, South Bend, Ind. | | | | | | |
| Chop Feed | 3374 | 3.5 | 9.0 | 8.0 | | Corn, oats |
| Kraekenberger, Jake, West Terre Haute, Ind. | | | | | | |
| Corn Bran | 814 | 5.8 | 9.0 | 12.7 | | Corn bran |
| Krause Milling Company, Chas. A., Milwaukee, Wis. | | | | | | |
| Badger Fancy Mixed Feed | 4341 | 3.0 | 11.0 | 9.0 | | Wheat bran, corn reddog flour |
| Badger Wheat Middlings and Maizo (Corn) | | | | | | |
| Red Dog Flour | 4362 | 3.0 | 11.0 | 9.0 | | Wheat middlings, corn reddog flour |
| Badger Cream Flakes | 4683 | 3.0 | 8.5 | 9.0 | | Corn bran |
| Badger Maizo Corn Reddog Flour..... | 7671 | 7.5 | 11.0 | 2.0 | | Low grade corn flour containing the finer particles of corn bran |
| Kuhn, R. A., Argos, Ind. | | | | | | |
| Wheat Bran | 2171 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| Wheat Middlings | 2172 | 4.0 | 14.0 | 7.0 | | Wheat middlings |

¹⁸ Succeeded by Zanesville Roller Mills

Brands Certified by Manufacturers as Being on Sale, May 1, 1913 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Kuhn & Company, Paul, Terre Haute, Ind. | | | | | |
| Wheat Middlings ----- | 3250 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Wheat Bran ----- | 3273 | 3.5 | 14.0 | 10.0 | Wheat bran |
| Kuhn & Son, John H., Michigan City, Ind. | | | | | |
| Chop Feed ----- | 5331 | 3.5 | 8.8 | 10.0 | Corn, oats |
| Wheat Middlings and Screenings ----- | 9053 | 3.0 | 13.0 | 8.0 | Wheat middlings, ground wheat screenings |
| Wheat Bran & Screenings ----- | 9054 | 3.0 | 13.0 | 11.0 | Wheat bran, ground wheat screenings |
| Lafayette Milling Company, The, Lafayette, Ind. | | | | | |
| Mixed Bran ----- | 117 | 4.0 | 14.0 | 10.0 | Wheat bran, corn bran |
| Middlings ----- | 3831 | 2.8 | 14.0 | 7.0 | Wheat middlings |
| Corn Feed Meal ----- | 6116 | 2.5 | 7.5 | 5.0 | Corn feed meal |
| LaGrange Mills, Red Wing, Minn. | | | | | |
| Fine Middlings with Ground Screenings not Exceeding Mill Run ----- | 8604 | 5.0 | 15.5 | 9.5 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Wheat Bran ----- | 8787 | 4.0 | 13.5 | 13.7 | Wheat bran |
| LaGro Milling Company, LaGro, Ind. | | | | | |
| Prop's Special Mixed Feed ----- | 3606 | 3.0 | 13.0 | 12.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Lake Milling Company, Lake, Ind. | | | | | |
| Corn Feed Meal ----- | 8657 | 4.0 | 9.0 | 15.0 | Corn bran, corn grits, corn germ |
| Mixed Feed ----- | 8658 | 3.8 | 14.0 | 10.0 | Wheat bran, ground wheat screenings |
| LaPorte Milling Company, LaPorte, Ind. | | | | | |
| Rye Feed ----- | 4117 | 2.5 | 14.0 | 5.0 | Rye bran, middlings |
| Wheat Bran ----- | 5995 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Wheat Middlings ----- | 5996 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Larabee Flour Mills Corporation, Hutchinson, Kansas | | | | | |
| Wheat Bran with Mill Run Screenings Not to Exceed 8% ----- | 8467 | 3.2 | 15.0 | 10.0 | Wheat bran, mill run ground wheat screenings not to exceed 8% |
| Standard Wheat Shorts ----- | 8468 | 4.2 | 17.0 | 6.2 | Wheat shorts |
| Lash Flour Mills, Fred B., Farmersburg, Ind. | | | | | |
| Lash's Shorts ----- | 997 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Corn Feed Meal ----- | 7783 | 2.5 | 7.5 | 5.0 | Corn feed meal |
| Fine Mixed Feed ----- | 8543 | 3.0 | 12.0 | 15.0 | Wheat middlings, ground wheat screenings, oat hulls |
| Coarse Mixed Feed ----- | 8544 | 3.0 | 11.0 | 15.0 | Wheat bran, corn bran, ground wheat screenings, oat hulls |
| Lash's Mixed Feed ----- | 9059 | 3.0 | 11.0 | 15.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Laubscher, Wm. F., Evansville, Ind. | | | | | |
| Ship Stuff ----- | 2649 | 2.0 | 8.0 | 10.0 | Wheat bran, middlings |
| Bran ----- | 2650 | 2.0 | 8.0 | 10.0 | Wheat bran |
| Mixed Feed ----- | 7442 | 3.0 | 8.0 | 10.0 | Wheat bran, middlings |
| Lawrenceburg Roller Mills Company, Lawrenceburg, Ind. | | | | | |
| "Snowflake" Middlings ----- | 11 | 5.1 | 16.0 | 7.0 | Wheat middlings |
| Snowflake Bran ----- | 3936 | 3.8 | 14.2 | 9.5 | Wheat bran |
| Golden Bull Bran ----- | 7110 | 2.0 | 15.5 | 11.5 | Wheat bran |
| Golden Bull Middlings ----- | 7111 | 3.0 | 17.5 | 8.0 | Wheat middlings |
| "Golden Bull" Mixed Feed ----- | 8517 | 2.5 | 16.0 | 10.2 | Wheat bran, middlings |
| "Snowflake" Mixed Feed ----- | 8518 | 4.3 | 15.2 | 8.0 | Wheat bran, middlings |
| Snowflake Rye Middlings and Screenings ----- | 9248 | 3.0 | 14.0 | 6.0 | Rye middlings, ground rye screenings not exceeding mill run |
| Snowflake Barley Mixed Feed and Screenings ----- | 9249 | 1.0 | 6.0 | 25.0 | Barley hulls, barley bran, barley middlings, whole barley screenings not exceeding mill run |
| Snowflake Corn Feed Meal ----- | 9235 | 6.5 | 9.5 | 4.7 | Corn bran, corn germ, corn feed meal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Leavel, I. A., Bainbridge, Ind. ¹⁹ | | | | | | |
| Wheat Middlings ----- | 7501 | 4.0 | 14.5 | 8.0 | Wheat middlings | |
| I. A. Leavel Mixed Feed ----- | 7502 | 3.5 | 14.0 | 10.0 | Wheat bran, middlings, ground wheat screenings | |
| Lee & Company, James M., New Albany, Ind. | | | | | | |
| Success Chop Feed ----- | 5421 | 2.7 | 8.5 | 8.0 | Corn, oats, corn feed meal | |
| Lee-Warren Milling Company, Salina, Kansas | | | | | | |
| Wheat Shorts ----- | 7480 | 3.5 | 16.0 | 5.5 | Wheat shorts | |
| Wheat Bran & Screenings ----- | 7481 | 3.5 | 14.5 | 10.0 | Wheat bran, whole wheat screenings not to exceed mill run | |
| Leesburg Grain & Milling Company, The, Leesburg, Ind. | | | | | | |
| Chop ----- | 304 | 3.9 | 9.5 | 6.0 | Corn, oats | |
| Wheat Bran ----- | 305 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Middlings ----- | 306 | 4.0 | 14.0 | 7.0 | Wheat middlings | |
| Corn Bran ----- | 9215 | 2.5 | 7.0 | 10.0 | Corn bran | |
| Leib, Clate, Elkhart, Ind. | | | | | | |
| Chop Feed ----- | 4764 | 2.5 | 9.0 | 6.0 | Corn, oats | |
| Lemon Milling Company, The, Bedford, Ind. | | | | | | |
| Corn & Oats Chop ----- | 3246 | 4.0 | 8.5 | 6.0 | Corn, oats | |
| Mixed Mill Feed ----- | 3015 | 3.5 | 14.0 | 8.0 | Wheat bran, middlings, shorts, corn bran, ground wheat screenings, mill sweepings | |
| Corn Feed Meal ----- | 9243 | 4.0 | 9.0 | 10.0 | Corn feed meal | |
| Lewis Milling Company, Lewis, Ind. | | | | | | |
| Wheat Bran ----- | 6005 | 3.5 | 14.0 | 12.0 | Wheat bran | |
| Wheat Shorts & Low Grade Flour ----- | 6003 | 2.5 | 13.0 | 8.0 | Wheat shorts, low grade flour | |
| Lewisport Mill Company, Lewisport, Ky. | | | | | | |
| "Farmers Choice" ----- | 2377 | 4.2 | 14.0 | 7.0 | Wheat middlings, corn bran | |
| "Mixed Feed" ----- | 2378 | 4.0 | 14.0 | 8.0 | Wheat bran, middlings, ground wheat screenings, corn bran | |
| Liebhardt & Lovett, Middletown, Ind. | | | | | | |
| Chop Feed ----- | 8941 | 3.0 | 8.5 | 10.0 | Corn, oats, corn feed meal | |
| Lindauer, Ferd., Fulda, Ind. | | | | | | |
| Wheat Bran ----- | 1033 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Mixed Feed ----- | 7748 | 3.0 | 13.0 | 6.0 | Wheat shorts, wheat scorings, chaff | |
| Lindsborg Milling & Elevator Company, Lindsborg, Kansas | | | | | | |
| Pure Wheat Bran ----- | 6073 | 3.5 | 14.5 | 10.0 | Wheat bran | |
| Wheat Shorts & Screenings ----- | 6074 | 3.5 | 16.0 | 7.0 | Wheat shorts, not exceeding 8% ground wheat screenings | |
| Lingeman, Adams & Company, Brownsburg, Ind. | | | | | | |
| Bran ----- | 3320 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Corn Feed Meal ----- | 4426 | 3.0 | 8.5 | 5.0 | Corn feed meal | |
| Mixed Feed ----- | 6822 | 2.4 | 7.0 | 10.0 | Wheat bran, corn bran, aspirator dust from ground corn, oats and rye | |
| Wheat Middlings ----- | 7603 | 2.5 | 14.0 | 6.0 | Wheat middlings | |
| Chop Feed ----- | 7938 | 3.0 | 9.0 | 10.0 | Corn, oats, corn feed meal | |
| L A Co Mixed Feed ----- | 9214 | 3.5 | 14.0 | 10.0 | Wheat bran, wheat middlings | |
| Linkhart & Son, J. W., North Vernon, Ind. | | | | | | |
| Linkhart's Mixed Feed ----- | 7410 | 3.5 | 9.5 | 12.0 | Wheat bran, shorts, corn bran, corn feed meal, whole wheat screenings | |
| Linton Mill Company, The, Linton, Ind. | | | | | | |
| Corn & Oat Chop ----- | 503 | 3.9 | 9.5 | 6.0 | Corn, oats | |
| Wheat Shorts ----- | 507 | 4.0 | 14.0 | 8.0 | Wheat shorts | |
| Wheat Bran ----- | 508 | 3.8 | 14.0 | 10.0 | Wheat bran | |

¹⁹ Succeeded by Bainbridge Mill & Elevator Co.

Brands Certified by Manufacturers as Being on Sale May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Linton Mill Company, The, Linton, Ind. | | | | | | |
| Mixed Feed ----- | 1792 | 4.0 | 13.0 | 11.0 | | Wheat bran, shorts, corn bran |
| A. Mixed Feed ----- | 4047 | 3.5 | 13.0 | 12.0 | | Wheat bran, shorts, corn bran, ground wheat screenings |
| Listman Mill Company, LaCrosse, Wis. | | | | | | |
| Elmco Standard Middlings ----- | 3367 | 5.6 | 18.1 | 6.4 | | Wheat middlings |
| Elmco Bran ----- | 3368 | 4.1 | 16.6 | 11.3 | | Wheat bran |
| Little Crow Milling Company, Warsaw, Ind. | | | | | | |
| Little Crow Wheat Bran ----- | 360 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| Wheat Middlings & Screenings ----- | 7284 | 3.0 | 13.0 | 9.0 | | Wheat middlings, ground wheat screenings |
| Livonia Flouring Mills, Livonia, Ind. | | | | | | |
| Wheat Middlings ----- | 6920 | 3.0 | 13.0 | 7.0 | | Wheat middlings |
| Mixed Bran & Screenings ----- | 6921 | 3.0 | 13.0 | 11.0 | | Wheat bran, corn bran, ground wheat screenings |
| Logan, George, Shirley, Ind. | | | | | | |
| Mixed Feed ----- | 6894 | 3.0 | 13.0 | 10.0 | | Wheat bran, shorts, ground wheat screenings |
| Shorts ----- | 7082 | 3.0 | 13.0 | 8.0 | | Wheat shorts |
| Lone Star Feed Mill, Washington, Ind. ²⁰ | | | | | | |
| Lone Star Chop Feed ----- | 5929 | 3.0 | 9.0 | 7.0 | | Corn, oats, corn feed meal |
| Long, John C., Chesterton, Ind., R. R. 2 ²¹ | | | | | | |
| Wheat Middlings ----- | 1495 | 4.0 | 14.0 | 7.0 | | Wheat middlings |
| Wheat Bran ----- | 1496 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| Longfellow Bros., Kokomo, R. R. 8, Ind. | | | | | | |
| Chop Feed ----- | 7293 | 3.0 | 8.5 | 9.0 | | Corn, oats, corn feed meal |
| Loogootee Milling Company, Loogootee, Ind. | | | | | | |
| Bran ----- | 1837 | 3.2 | 14.0 | 10.0 | | Wheat bran |
| Shorts ----- | 1838 | 3.8 | 14.0 | 8.0 | | Wheat shorts |
| A. Dairy Mixed Feed ----- | 4102 | 3.5 | 14.0 | 10.0 | | Wheat bran, middlings, ground wheat screenings |
| Mixed Feed ----- | 4103 | 3.0 | 14.0 | 11.0 | | Wheat bran, ground wheat screenings |
| Corn Feed Meal ----- | 6438 | 2.5 | 8.0 | 5.0 | | Corn feed meal |
| Special Mixed Feed ----- | 9310 | 3.0 | 10.0 | 19.0 | | Wheat bran, middlings, oat hulls, ground wheat screenings |
| Loughry Bros. Milling & Grain Company, Monticello, Ind. | | | | | | |
| Loughry's Corn and Oats Chop ----- | 41 | 3.7 | 9.5 | 6.0 | | Corn, oats |
| Loughry's Mixed Feed ----- | 1946 | 3.7 | 14.0 | 10.0 | | Wheat bran, ground wheat screenings "not exceeding mill run" |
| Loughry's Corn Bran ----- | 2549 | 4.0 | 7.0 | 11.0 | | Corn bran |
| Loughry's Buckwheat Mixed Feed ----- | 4614 | 2.5 | 10.0 | 33.0 | | Buckwheat middlings, hulls |
| Loughry's Wheat Middlings & Screenings ----- | 6170 | 4.0 | 14.0 | 7.0 | | Wheat middlings, ground wheat screenings not exceeding mill run |
| Loughry's Feed ----- | 6171 | 4.0 | 16.5 | 9.0 | | Wheat bran, middlings, ground wheat screenings not exceeding mill run |
| Loughry's Feed Meal ----- | 7713 | 2.5 | 7.0 | 5.0 | | Corn feed meal |
| Loughry's Reddog Flour ----- | 7731 | 3.5 | 16.0 | 3.0 | | Low grade wheat flour containing the finer particles of wheat bran |
| Loughry's Rye Middlings ----- | 9097 | 3.0 | 14.0 | 6.0 | | Rye middlings |
| Louisiana State Rice Milling Company, New Orleans, La. | | | | | | |
| Rice Polish ----- | 5275 | 6.5 | 9.0 | 5.0 | | Rice polish |
| Rice Bran ----- | 5298 | 8.5 | 11.5 | 12.0 | | Rice bran |
| Pearling Cone Meal ----- | 8525 | 13.2 | 13.2 | 9.0 | | A manufactured mixture of rice bran and rice polish |

²⁰ Succeeded by G. E. Reeve & Son²¹ Succeeded by C. J. Rolfe

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent, crude fat | Not less than per cent, crude protein | Not more than per cent, crude fiber | |
| Louisville Milling Company, Louisville, Ky. Wheat Bran, with Ground Screenings not Exceeding Mill Run ----- | 6175 | 4.0 | 14.5 | 9.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Wheat Shorts with Ground Screenings not Exceeding Mill Run ----- | 6176 | 4.0 | 15.0 | 7.0 | Wheat shorts, ground wheat screenings not exceeding mill run |
| Wheat Mixed Feed, with Ground Screenings not Exceeding Mill Run ----- | 6333 | 4.0 | 14.5 | 8.0 | Wheat bran, shorts, ground wheat screenings not exceeding mill run |
| Dandy Red Dog Middlings ----- | 6703 | 4.0 | 16.0 | 5.0 | Low grade wheat flour containing the finer particles of wheat bran |
| Barley Mixed Feed and Ground Barley Screenings ----- | 9174 | 1.0 | 6.0 | 25.0 | Barley hulls, barley middlings, barley bran, ground barley screenings |
| Lynn City Mills, Lynn, Ind. Wheat Middlings ----- | 8887 | 3.5 | 13.0 | 8.0 | Wheat middlings |
| Wheat Bran ----- | 8888 | 3.5 | 13.5 | 10.0 | Wheat bran |
| Lyon & Greenleaf Company, Ligonier, Ind. Wheat Middlings and Screenings ----- | 8003 | 4.0 | 14.0 | 7.0 | Wheat middlings, ground wheat screenings |
| Mixed Feed ----- | 8217 | 3.8 | 14.0 | 11.0 | Wheat bran, ground wheat screenings |
| Lyons Milling Company, The, Lyons, Kansas Wheat White Shorts ----- | 6612 | 4.0 | 15.0 | 3.5 | Wheat shorts |
| Wheat Bran & Scourings ----- | 6613 | 3.5 | 15.0 | 10.0 | Wheat bran, scourings |
| Maegerlein, E. S., Patrickburg, Ind. Shorts ----- | 8100 | 3.0 | 13.0 | 9.0 | Wheat shorts |
| Bran ----- | 8103 | 3.0 | 13.0 | 10.0 | Wheat bran |
| Mixed Feed ----- | 8698 | 3.0 | 13.0 | 10.0 | Wheat bran, corn bran, ground wheat screenings |
| Maegerlein Roller Mills, Arthur, Clay City, Ind. Bran ----- | 3807 | 3.0 | 13.0 | 11.0 | Wheat bran |
| Shorts ----- | 3808 | 3.5 | 13.0 | 8.5 | Wheat shorts |
| Mixed Feed ----- | 6599 | 2.8 | 12.0 | 12.0 | Wheat bran, corn bran, ground wheat screenings |
| Maginot Bros., Hammond, Ind. "Magnet" Corn & Oats Chop ----- | 3745 | 3.5 | 9.0 | 6.0 | Corn, oats |
| Hammond Chop ----- | 4680 | 3.0 | 9.0 | 9.0 | Corn, oats, corn feed meal |
| Wheat Bran and Screenings ----- | 4681 | 3.8 | 14.0 | 10.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings & Screenings ----- | 5883 | 4.5 | 14.0 | 11.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Mahalasville Milling Company, Mahalasville, Ind. Wheat Shorts ----- | 8211 | 2.0 | 10.0 | 8.0 | Wheat shorts |
| Mixed Bran ----- | 8212 | 3.0 | 13.0 | 11.5 | Wheat bran, corn bran |
| Majot & Morgan, Michigan City, R. R. 1, Ind. Mill Feed ----- | 8037 | 3.0 | 13.0 | 12.0 | Wheat, rye, rye bran, rye middlings, corn feed meal |
| Mallinson, Charles L., Evansville, Ind. Mixed Feed ----- | 7363 | 3.5 | 13.5 | 12.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Wheat Shorts & Ground Screenings not Exceeding Mill Run ----- | 7334 | 4.0 | 14.0 | 10.0 | Wheat shorts, ground wheat screenings not exceeding mill run |
| Malsbary & Company, Darlington, Ind. Malsbary's Chop Feed ----- | 3302 | 3.0 | 9.0 | 6.0 | Wheat, corn, oats |
| Malsbary Corn and Oats ----- | 3834 | 3.5 | 9.0 | 7.0 | Corn, oats |
| Maney Milling Company, Omaha, Neb. Wheat Shorts ----- | 2996 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Mixed Feed ----- | 5580 | 4.0 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Marengo Milling Company, Marengo, Ind. "A" Mixed Feed ----- | 7746 | 3.5 | 13.5 | 12.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Marion National Mill Company, The, Marion, Ohio Winter Wheat Middlings ----- | 8966 | 4.6 | 16.2 | 5.0 | Wheat middlings |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Markland Roller Mills, Markland, Ind. Mixed Feed ----- | 1260 | 3.8 | 14.0 | 10.0 | Wheat bran, middlings, whole wheat screenings |
| Marshall Milling Company, Marshall, Ind. Shorts ----- | 5157 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Mill Feed ----- | 5158 | 3.0 | 14.0 | 10.0 | Wheat bran, middlings, shorts, corn bran, ground wheat screenings |
| Marshall Milling Company, Marshall, Minn. Wheat Shorts, With Screenings Not Exceeding Mill Run ----- | 8626 | 5.0 | 15.5 | 10.5 | Wheat shorts, ground wheat screenings not exceeding mill run |
| Wheat Bran, With Screenings Not Exceeding Mill Run ----- | 8627 | 4.0 | 14.5 | 12.5 | Wheat bran, ground wheat screenings not exceeding mill run |
| Red Dog ----- | 8628 | 5.0 | 17.0 | 5.0 | Low grade wheat flour containing the finer particles of wheat bran |
| White Middlings ----- | 8629 | 5.5 | 17.5 | 6.5 | Wheat middlings |
| Martin, John D., Lafayette, Ind. Wheat Middlings ----- | 4257 | 4.0 | 15.0 | 8.0 | Wheat middlings |
| Wheat Bran ----- | 4258 | 4.0 | 14.0 | 9.0 | Wheat bran |
| Wheat Middlings & Ground Screenings ----- | 6147 | 4.0 | 15.0 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Corn Feed Meal ----- | 7001 | 2.7 | 7.0 | 4.0 | Corn feed meal |
| Martin & Martin, New Castle, Ind. Martin & Martin's Wheat Bran ----- | 3150 | 3.2 | 12.0 | 10.0 | Wheat bran |
| Martin & Martin's Wheat Middlings ----- | 3794 | 3.7 | 14.0 | 10.0 | Wheat middlings |
| Martin & Martin's Mixed Feed ----- | 4351 | 3.5 | 13.0 | 8.0 | Wheat bran, middlings |
| Dairy Mixed Feed ----- | 6958 | 3.2 | 12.0 | 10.0 | Wheat bran, wheat middlings, corn bran, corn feed meal |
| Corn Feed Meal ----- | 7863 | 2.7 | 7.5 | 8.0 | Corn feed meal |
| Martinsville Milling Company, Martinsville, Ind. Corn Feed Meal ----- | 5977 | 2.5 | 7.5 | 5.0 | Corn feed meal |
| A. Mixed Mill Feed ----- | 6743 | 4.0 | 15.0 | 10.0 | Wheat bran, middlings, corn bran, ground wheat screenings not exceeding mill run |
| Maumee Valley Mills, New Haven, Ind. Bran ----- | 6896 | 3.5 | 14.0 | 7.0 | Wheat bran |
| Mayflower Mills, Fort Wayne, Ind. Mayflower Mills Chop Feed ----- | 449 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Vollands Chop Feed ----- | 4506 | 3.5 | 9.0 | 10.0 | Corn, oats |
| Mayflower Bran and Screenings ----- | 6715 | 3.8 | 14.0 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Mayflower Mills Mixed Feed ----- | 7175 | 3.8 | 14.0 | 10.0 | Wheat bran, middlings, ground wheat screenings not exceeding mill run |
| Red Dog ----- | 7444 | 2.0 | 10.0 | 5.0 | Low grade wheat flour containing the finer particles of wheat bran |
| Wheat Middlings with Ground Screenings Not Exceeding Mill Run ----- | 8170 | 4.0 | 14.0 | 9.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Mendenhall-Weaver Company, Sheridan, Ind. Wheat Bran & Screenings ----- | 8639 | 2.5 | 14.0 | 10.0 | Wheat bran, ground wheat screenings |
| Wheat Shorts ----- | 8640 | 3.5 | 14.0 | 6.0 | Wheat shorts |
| Merchants Hay & Grain Company, Indianapolis, Ind. Rye Middlings ----- | 4385 | 2.9 | 15.0 | 3.0 | Rye middlings |
| Wheat Middlings ----- | 4386 | 4.0 | 15.5 | 6.0 | Wheat middlings |
| Wheat Bran ----- | 4387 | 4.0 | 15.4 | 10.0 | Wheat bran |
| Corn Feed Meal ----- | 8535 | 2.4 | 8.0 | 3.0 | Corn feed meal |
| Metamora Roller Mills, Metamora, Ind. Mixed Feed ----- | 8523 | 4.0 | 14.5 | 10.0 | Wheat bran, middlings, corn bran, ground wheat screenings not exceeding mill run |
| Mexico Roller Mills, Mexico, Ind. Pure Wheat Bran ----- | 4009 | 3.5 | 14.0 | 11.0 | Wheat bran |
| Mill Run Feed ----- | 4011 | 3.8 | 14.0 | 9.0 | Wheat bran, shorts, middlings |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Meyer & Sons Milling Company, John F., St. Louis, Mo. Albatross Bran ----- | 8785 | 3.9 | 16.2 | 10.0 | Wheat bran, mill run screenings not exceeding 8% |
| Miesenhelder Bros., Sullivan, Ind. Wheat Middlings ----- | 858 | 5.0 | 15.4 | 5.0 | Wheat middlings |
| Miesenhelder's Mixed Feed ----- | 4152 | 2.5 | 10.5 | 11.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Miesenhelder's Perfecto Mixed Feed ----- | 4586 | 2.5 | 8.0 | 10.0 | Corn, oats, wheat bran, wheat middlings, corn bran, ground wheat screenings |
| Wheat Bran & Ground Wheat Screenings Not Exceeding Mill Run ----- | 8924 | 3.5 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Milan Milling Company, Milan, Ind. Shorts ----- | 3314 | 4.0 | 14.0 | 7.0 | Wheat shorts |
| Wheat Bran ----- | 3315 | 3.7 | 14.0 | 10.0 | Wheat bran |
| Corn Bran ----- | 8973 | 2.0 | 5.0 | 12.0 | Corn bran |
| Mixed Feed ----- | 9216 | 4.0 | 15.0 | 9.0 | Wheat bran, shorts |
| Milford Grain & Milling Company, Milford, Ind. Wheat Bran ----- | 8479 | 3.0 | 14.0 | 10.0 | Wheat bran |
| Wheat Middlings & Ground Screenings ----- | 8480 | 3.5 | 14.0 | 9.0 | Wheat middlings, ground wheat screenings not to exceed mill run |
| Miller, A. J., Montpelier, Ind. Mixed Feed ----- | 6257 | 3.0 | 13.0 | 10.0 | Wheat bran, middlings, corn bran, dust collector dust |
| Miller, Fred, West College Corner, Ind. Triona Bran with Screenings ----- | 9026 | 3.5 | 13.0 | 12.5 | Wheat bran, ground wheat screenings not exceeding mill run |
| Triona Middlings with Screenings ----- | 9027 | 5.0 | 15.0 | 6.5 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Triona Mixed Feed ----- | 9028 | 4.5 | 14.0 | 8.5 | Wheat bran, middlings, ground wheat screenings not exceeding mill run |
| Miller Flour & Feed Company, The Wesley, South Bend, Ind. Mixed Feed ----- | 2847 | 3.8 | 14.0 | 12.0 | Wheat bran, ground wheat screenings, corn bran |
| Chop Feed ----- | 4111 | 3.5 | 9.0 | 7.0 | Corn, oats, corn feed meal |
| Wheat Middlings & Screenings ----- | 6483 | 4.0 | 14.0 | 7.0 | Wheat middlings, ground wheat screenings |
| Milltown Milling Company, Milltown, Ind. "Mixed Feed" ----- | 7742 | 3.5 | 13.5 | 10.0 | Wheat bran, middlings, ground wheat screenings, corn bran, corn feed meal |
| Mishawaka Feed Store, Mishawaka, Ind. Mishawaka Chop Feed ----- | 8695 | 3.0 | 9.5 | 6.0 | Corn, oats, rye |
| Mitchell, J. C., Chicago, Ill. Poland Middlings ----- | 3318 | 4.0 | 18.0 | 8.0 | Wheat middlings |
| Model Mill, The, Friendswood, Ind. Wheat Shorts ----- | 3850 | 2.0 | 12.0 | 7.0 | Wheat shorts |
| Mixed Bran ----- | 3851 | 3.5 | 13.0 | 13.0 | Wheat bran, corn bran |
| Modoc Roller Mills & Elevator, Modoc, Ind. Mixed Feed ----- | 7253 | 3.0 | 13.0 | 10.0 | Wheat bran, shorts, ground wheat screenings |
| Monarch Milling Company, The, Hutchinson, Kansas Wheat Middlings ----- | 8741 | 5.0 | 18.0 | 9.0 | Wheat middlings |
| Winter Wheat Bran ----- | 8742 | 3.0 | 16.0 | 12.0 | Wheat bran |
| Monroe Grain, Hay & Milling Company, Monroe, Ind. Corn & Oats Chop ----- | 2188 | 3.5 | 9.0 | 6.0 | Corn, oats |
| Wheat Middlings ----- | 4789 | 2.2 | 13.0 | 6.0 | Wheat middlings |
| Wheat Bran ----- | 4790 | 3.0 | 14.0 | 10.0 | Wheat bran |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Montmorenci Elevator Company, Montmorenci, Ind. Corn Feed Meal ----- | 8532 | 2.0 | 8.5 | 7.0 | Corn feed meal |
| Moon, Grant, Denver, Ind. Corn & Oats Chop ----- | 2750 | 3.5 | 9.0 | 9.0 | Corn, oats |
| Moore Milling Company, R. P., Princeton, Ind. Corn Bran ----- | 999 | 5.0 | 8.0 | 13.0 | Corn bran |
| Morgan, Frank, Ilene, Ind. Crax. Corn & Oats ----- | 7084 | 3.5 | 9.0 | 6.0 | Corn, oats |
| Morgan, Frank, Plainville, Ind. Mill Feed ----- | 9324 | 3.5 | 14.0 | 7.5 | Wheat bran, middlings |
| Morocco Feed & Grist Mill, Morocco, Ind. Chop ----- | 5928 | 3.2 | 9.2 | 6.0 | Corn, oats |
| Morristown Milling Company, Morristown, Ind. Corn Bran ----- | 2614 | 5.0 | 9.0 | 13.0 | Corn bran |
| Moscow Roller Mills, Moscow, Ind. Wheat Middlings ----- | 1633 | 3.8 | 14.2 | 3.8 | Wheat middlings |
| Wheat Bran ----- | 1634 | 3.7 | 14.1 | 7.0 | Wheat bran |
| Moutoux, P. & H., Evansville, Ind. "X L" Dry Mixed Feed ----- | 9238 | 2.5 | 9.0 | 12.0 | Corn, oats, wheat bran, middlings, ground wheat screenings, corn feed meal |
| Mueller, E. P., Chicago, Ill. Rye Middlings and Screenings ----- | 8731 | 3.5 | 16.1 | 9.0 | Rye middlings, ground rye screenings |
| Wheat bran with Ground Screenings ----- | 8842 | 4.0 | 14.5 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Mulberry Coal & Feed Company, Mulberry, Ind. Mulberry Corn Feed Meal ----- | 5986 | 2.7 | 7.5 | 5.0 | Corn feed meal |
| Muller Bros. Milling Company, Ferdinand, Ind. Mixed Feed ----- | 6709 | 3.5 | 14.0 | 10.0 | Wheat bran, shorts, ground wheat screenings, corn bran |
| Wheat Bran, Corn Bran & Screenings ----- | 6710 | 3.5 | 14.0 | 10.0 | Wheat bran, ground wheat screen- ings, corn bran |
| Wheat Shorts and Screenings ----- | 8448 | 4.0 | 14.0 | 8.0 | Wheat shorts, ground wheat screen- ings |
| Myers & Son, Joseph H., Chili, Ind. ²² Germ Middlings ----- | 3325 | 3.0 | 15.0 | 9.0 | Wheat middlings |
| Bran ----- | 3326 | 3.0 | 16.0 | 10.0 | Wheat bran |
| Chop Feed ----- | 4543 | 3.2 | 9.0 | 10.0 | Wheat, corn, oats, rye |
| White Middlings ----- | 7581 | 2.9 | 13.9 | 11.5 | Wheat middlings |
| Mystic Milling Company, Sioux City, Iowa "Mystic Bran" ----- | 6044 | 4.5 | 14.0 | 15.0 | Wheat bran |
| McCorkle & Riley, Thorntown, Ind. (A) Wonder ----- | 5887 | 3.5 | 9.0 | 12.0 | Wheat bran, corn bran, ground wheat screenings |
| Ground Corn and Oats ----- | 5888 | 3.5 | 9.0 | 6.0 | Corn, oats |
| McCormick & Son, Chas. W., Logansport, Ind. Wheat Bran & Screenings ----- | 7538 | 3.5 | 13.5 | 12.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings & Screenings ----- | 7539 | 4.0 | 14.0 | 10.0 | Wheat middlings, ground wheat screenings |
| McCoy, F. C., Orleans, Ind. Mixed Feed ----- | 2294 | 3.5 | 13.0 | 11.0 | Wheat bran, screenings |

²² Succeeded by J. L. & J. M. Myers

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| McCoy Bros., Liberty, Ind. | | | | | | |
| Wheat Middlings ----- | 162 | 3.8 | 15.1 | 5.0 | Wheat middlings | |
| Wheat Bran ----- | 1428 | 3.5 | 14.2 | 11.5 | Wheat bran | |
| Mixed Feed ----- | 2436 | 3.5 | 15.0 | 8.0 | Wheat bran, middlings, corn bran | |
| McCoy & Company, U. G., Vincennes, Ind. | | | | | | |
| Corn & Oats Chop ----- | 8168 | 3.9 | 9.0 | 6.0 | Corn, oats | |
| McCoy & Garten, Indianapolis, Ind. | | | | | | |
| Wheat Bran and Screenings ----- | 5504 | 4.0 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| McCoys Choice Wheat Middlings with Screenings Not Exceeding Mill Run ----- | 5514 | 3.0 | 16.0 | 8.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Rye Middlings ----- | 5879 | 3.0 | 15.0 | 6.0 | Rye middlings | |
| Rye Middlings and Ground Rye Screenings ----- | 9256 | 3.0 | 15.0 | 6.0 | Rye middlings, ground rye screenings not exceeding mill run | |
| McHenry Milling Company, L. E., Lexington, Ind. | | | | | | |
| McHenry's Mixed Feed ----- | 8499 | 3.4 | 14.3 | 4.9 | Wheat bran, shorts, middlings, ground wheat screenings not exceeding mill run | |
| McKenzie Cereal Food & Milling Company, Quincy, Mich. | | | | | | |
| McKenzies Pure Wheat Middlings ----- | 2822 | 3.8 | 13.0 | 9.0 | Wheat middlings | |
| McKenzies Pure Wheat Bran ----- | 2823 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| McMahan Brothers, Valparaiso, Ind. | | | | | | |
| Perfection Chop Feed ----- | 4901 | 3.0 | 9.0 | 10.0 | Corn, oats | |
| McMillen & Son, J. W., Fort Wayne, Ind. ²³ | | | | | | |
| McMillen's Corn and Oats Chop ----- | 8459 | 3.9 | 9.5 | 6.0 | Corn, oats | |
| Naber & Company, Chas. F., Alexandria, Ind. | | | | | | |
| Mixed Bran ----- | 6574 | 3.0 | 13.0 | 11.0 | Wheat bran, corn bran | |
| Nabers Bran ----- | 7197 | 3.3 | 14.0 | 11.0 | Wheat bran | |
| Mixed Feed ----- | 9311 | 3.0 | 13.0 | 10.0 | Wheat bran, middlings, corn bran, ground wheat screenings | |
| Nading Grain Company, Wm., Greensburg, Ind. | | | | | | |
| Nading's Chop Feed ----- | 7278 | 3.9 | 9.5 | 6.0 | Corn, oats | |
| Nading's Ground Feed ----- | 7710 | 3.3 | 9.5 | 11.0 | Corn, oats, corn bran, corn feed meal | |
| Corn Feed Meal ----- | 8863 | 2.5 | 7.5 | 5.0 | Corn feed meal | |
| Napoleon Flour Mills, Napoleon, Ind. | | | | | | |
| Napoleon Wheat Bran, Corn Bran and Screenings ----- | 4042 | 3.7 | 14.1 | 12.0 | Wheat bran, corn bran, whole wheat screenings | |
| Napoleon Middlings ----- | 4043 | 3.8 | 14.2 | 8.0 | Wheat middlings | |
| National Feed Company, St. Louis, Mo. | | | | | | |
| Wheat Bran and Screenings ----- | 4659 | 3.0 | 14.0 | 10.0 | Wheat bran, whole wheat screenings | |
| Mixed Feed or Mill Run with Screenings ----- | 5216 | 4.0 | 14.0 | 8.0 | Wheat bran, shorts, whole wheat screenings | |
| Wheat Middlings & Ground Screenings ----- | 7349 | 4.0 | 16.0 | 8.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Mixed Feed ----- | 8547 | 4.0 | 14.0 | 8.0 | Wheat bran, wheat middlings, corn bran, ground wheat screenings | |
| Corn Feed Meal ----- | 8637 | 7.0 | 10.0 | 10.0 | Corn bran, corn germ, corn grits and a part of the starchy portion of the corn kernel | |
| National Red Dog ----- | 9022 | 4.0 | 16.0 | 5.0 | Low grade wheat flour containing the finer particles of wheat bran | |
| National Mills, Angola, Ind. | | | | | | |
| Wheat Bran ----- | 7153 | 3.5 | 13.5 | 11.0 | Wheat bran | |
| Wheat Middlings ----- | 7154 | 3.0 | 13.0 | 7.0 | Wheat middlings | |
| Wheat Bran with Screenings ----- | 7622 | 3.0 | 13.5 | 11.0 | Wheat bran, ground wheat screenings not to exceed mill run | |
| Wheat Middlings with Screenings ----- | 7623 | 3.0 | 13.0 | 10.0 | Wheat middlings, ground wheat screenings not to exceed mill run | |

²³ Succeeded by The McMillen Company

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--|---|--|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Nesbit, I. A., Sullivan, Ind. Nesbit's Wheat Middlings ----- Nesbit's Mixed Feed ----- | 5017 5018 | 3.3 3.2 | 14.0 13.5 | 6.0 9.0 | Wheat middlings Wheat bran, wheat middlings, corn bran |
| Nesbit & Company, I. A., Sullivan, Ind. Shipstuff ----- Wheat Bran ----- | 860 861 | 5.0 4.0 | 15.4 15.4 | 5.0 9.0 | Wheat bran, middlings Wheat bran |
| New Albany Milling Company, The, New Albany, Ind. Barley Mixed Feed and Ground Barley Screenings ----- | 9182 | 1.0 | 6.0 | 25.0 | Barley hulls, barley bran, barley middlings, ground barley screenings |
| New Carlisle Milling Company, New Carlisle, Ind. Corn & Oats Chop ----- Wheat Bran ----- Wheat Middlings ----- | 1315 1316 1317 | 3.9 3.8 4.0 | 9.0 14.0 14.0 | 9.0 10.0 7.0 | Corn, oats Wheat bran Wheat middlings |
| New Castle Elevator Company, New Castle, Ind. Corn & Oat Chop ----- | 702 | 3.2 | 9.0 | 6.0 | Corn, oats |
| New Era Milling Company, The, Arkansas City, Kansas Mill Run Bran & Wheat Screenings ----- Wheat Bran & Wheat Screenings ----- Standard Wheat Shorts ----- White Shorts ----- | 6850 6859 6860 7476 | 3.7 3.5 4.0 3.7 | 17.0 16.0 17.5 17.6 | 9.0 10.5 6.0 3.5 | Wheat bran, ground wheat screenings Wheat bran, ground wheat screenings Wheat shorts Wheat shorts |
| New Middletown Milling Company, New Middletown, Ind. Wheat Middlings ----- Wheat Bran ----- | 3373 3304 | 2.5 3.8 | 12.0 14.0 | 7.0 10.0 | Wheat middlings Wheat bran |
| New Milling Company, The, Greenfield, Ind. Corn & Oats Chop ----- Mixed Feed ----- Corn Feed Meal ----- Wheat Middlings ----- | 1831 2516 3830 7721 | 3.9 3.8 2.7 2.4 | 9.5 14.0 7.5 14.0 | 6.0 12.0 5.0 7.0 | Corn, oats Wheat bran, corn bran, ground wheat screenings Corn feed meal Wheat middlings |
| New Prague Flouring Mill Company, New Prague, Minn. Seal of Minnesota Wheat Flour Middlings ----- Seal of Minnesota Wheat Bran, with Ground Screenings Not exceeding Mill Run ----- Seal of Minnesota Wheat Standard Middlings ----- | 7906 7907 7908 | 3.5 3.0 5.2 | 15.5 13.3 15.0 | 4.5 11.2 7.0 | Wheat middlings Wheat bran, ground wheat screenings not exceeding mill run Wheat middlings |
| Newton Stewart Milling Company, Newton Stewart, Ind. Mixed Feed ----- | 4725 | 3.0 | 14.0 | 10.0 | Wheat bran, middlings |
| Nichols & Company, C. E., Lowell, Ind. Corn & Oats Chop ----- Corn Bran ----- Buckwheat Mixed Feed ----- Standard Middlings with Ground Screenings Not Exceeding Mill Run ----- Wheat Bran with Ground Screenings not Exceeding Mill Run ----- Red Dog Flour ----- | 1528 5399 6377 7095 7096 7097 | 3.5 5.0 3.0 4.5 4.0 4.0 | 9.0 9.0 12.0 15.0 14.5 16.5 | 9.0 13.5 33.0 11.0 12.0 3.0 | Corn, oats Corn bran Buckwheat middlings, buckwheat hulls Wheat middlings, ground wheat screenings not exceeding mill run Wheat bran, ground wheat screenings not exceeding mill run Low grade wheat flour containing the finer particles of wheat bran |
| Nieman, C., Sunman, Ind. Nieman's Middlings ----- Nieman's Mixed Feed ----- | 500 501 | 4.0 3.7 | 14.0 14.0 | 5.0 9.7 | Wheat middlings Wheat bran, ground wheat screenings |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Niezer & Company, Fort Wayne, Ind. Wheat Middlings & Screenings ----- | 6268 | 3.0 | 13.0 | 8.0 | Wheat middlings, ground wheat screenings |
| Mixed Bran and Screenings ----- | 6270 | 3.0 | 13.0 | 11.0 | Wheat bran, corn bran, ground wheat screenings |
| Niezer & Company, Monroeville, Ind. Corn & Oats Chop ----- | 1501 | 3.5 | 9.0 | 9.0 | Corn, oats |
| Wheat Bran ----- | 1502 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Wheat Middlings ----- | 1503 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Noblesville Milling Company, Noblesville, Ind. N. M. Co's Mixed Feed ----- | 5243 | 4.0 | 16.0 | 8.0 | Wheat bran, middlings, ground wheat screenings |
| N. M. Co's Wheat Bran & Screenings ----- | 5252 | 3.7 | 14.5 | 8.0 | Wheat bran, ground wheat screenings |
| N. M. Co's Goodeatch Feed ----- | 5351 | 4.0 | 15.0 | 11.0 | Wheat bran, middlings, ground wheat screenings |
| Noblesville Milling Co's Middlings & Ground Screenings Not Exceeding Mill Run ----- | 7306 | 4.0 | 15.0 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Barley Mixed Feed with Ground Barley Screenings ----- | 9392 | 1.7 | 9.0 | 20.4 | Barley bran, barley middlings, barley hulls, ground barley screenings |
| Nodine, W. J., Waterloo, Ind. Wheat Bran ----- | 2773 | 3.0 | 13.0 | 10.0 | Wheat bran |
| Wheat Middlings ----- | 3151 | 3.5 | 14.0 | 7.0 | Wheat middlings |
| Noftsgier, Benjamin, Rochester, Ind. Corn and Oats Chop ----- | 2051 | 3.5 | 9.0 | 6.0 | Corn, oats |
| Nordmeyer, John A., Morris, Ind. Wheat Middlings ----- | 4080 | 3.6 | 14.6 | 6.0 | Wheat middlings |
| Norris & Kidwell, Washington, Ind. Wheat Bran ----- | 6279 | 3.0 | 13.5 | 9.0 | Wheat bran |
| Wheat Bran and Middlings ----- | 6281 | 4.0 | 14.7 | 8.0 | Wheat bran, middlings |
| Corn Bran ----- | 7911 | 3.0 | 6.0 | 19.0 | Corn bran |
| Wheat Middlings ----- | 8235 | 3.5 | 15.4 | 5.0 | Wheat middlings |
| North Grove Grain Company, North Grove, Ind. Chop Feed ----- | 6898 | 2.8 | 8.7 | 7.0 | Corn, oats, corn feed meal |
| North Judson Milling Company, North Judson, Ind. Rye Mixed Feed ----- | 8127 | 2.0 | 12.0 | 10.0 | Rye bran, rye middlings |
| Wheat Middlings ----- | 9032 | 2.0 | 12.0 | 7.0 | Wheat middlings |
| Wheat Mixed Feed ----- | 9033 | 3.0 | 13.0 | 10.0 | Wheat bran, wheat middlings |
| North Madison Coal Company, North Madison, Ind. Corn Bran ----- | 9178 | 5.0 | 9.0 | 15.0 | Corn bran |
| Buckwheat hulls ----- | 9179 | 1.1 | 5.2 | 46.2 | Buckwheat hulls |
| North Manchester Milling Company, North Manchester, Ind. "North Manchester Milling Company's Middlings" ----- | 855 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| "North Manchester Milling Company's Chop" ----- | 856 | 3.9 | 9.5 | 6.0 | Corn, oats |
| North Manchester Milling Company's Bran ----- | 3525 | 2.5 | 12.5 | 10.0 | Wheat bran |
| Mixed Feed ----- | 4252 | 3.0 | 11.5 | 12.5 | Wheat bran, ground wheat screenings, corn bran |
| North Star Feed & Cereal Company, The, Minneapolis, Minn. No. 1 Corn & Oats Feed ----- | 2506 | 3.1 | 9.8 | 5.9 | Corn, oats |
| Rye Middlings ----- | 4353 | 1.5 | 14.5 | 5.2 | Rye middlings |
| No. 2 Corn and Oats Feed ----- | 4884 | 3.2 | 9.5 | 7.0 | Corn, oats |
| Corn Feed Meal ----- | 7715 | 5.7 | 9.5 | 6.5 | Corn feed meal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| North Western Consolidated Milling Company, The, Minneapolis, Minn. | | | | | | |
| Pure Wheat Bran | 2825 | 4.0 | 14.5 | 11.0 | | Wheat bran |
| XXX Comet | 2828 | 4.0 | 16.5 | 3.0 | | Low grade wheat flour containing the finer particles of wheat bran |
| Wheat Flour Middlings with Ground Screenings Not Exceeding Mill Run | 5498 | 4.5 | 15.5 | 6.0 | | Wheat flour, middlings, ground wheat screenings not exceeding mill run |
| "Wheat Standard Middlings with Ground Screenings Not Exceeding Mill Run" | 6394 | 4.5 | 15.0 | 11.0 | | Wheat middlings, ground wheat screenings not exceeding mill run |
| Rye Middlings with Ground Screenings Not Exceeding Mill Run | 9070 | 3.0 | 14.0 | 7.0 | | Rye middlings, ground rye screenings not exceeding mill run |
| Barley Mill Feed with Ground Screenings Not Exceeding Mill Run | 9195 | 2.0 | 8.0 | 24.0 | | Barley hulls, barley bran, barley middlings, ground barley screenings |
| Norton & Company, Willis, Topeka, Kansas | | | | | | |
| Wheat Bran & Screenings | 6478 | 3.5 | 14.5 | 10.0 | | Wheat bran, ground wheat screenings |
| Wheat Shorts & Screenings | 6479 | 3.5 | 16.0 | 5.5 | | Wheat shorts, ground wheat screenings |
| Oakland City Roller Mills, Oakland City, Ind. | | | | | | |
| Mixed Feed | 8986 | 2.5 | 12.0 | 10.0 | | Wheat bran, middlings, whole wheat screenings, corn bran, corn feed meal |
| Oaktown Milling Company, Oaktown, Ind. | | | | | | |
| Mill Run | 5085 | 3.5 | 13.0 | 11.0 | | Wheat bran, corn bran, ground wheat screenings |
| Wheat Shorts | 5432 | 4.0 | 14.0 | 8.0 | | Wheat shorts |
| O'Conner Milling Company, Corydon, Ind. | | | | | | |
| Wheat Middlings | 7024 | 2.5 | 13.0 | 6.0 | | Wheat middlings |
| Bran and Screenings | 7025 | 3.0 | 13.5 | 9.0 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Odon Milling Company, Odon, Ind. | | | | | | |
| Cnop Feed | 55 | 3.9 | 9.5 | 6.0 | | Corn, oats |
| Corn Feed Meal | 5160 | 2.8 | 7.0 | 5.0 | | Corn feed meal |
| Pure Wheat Bran | 5393 | 3.8 | 15.4 | 9.0 | | Wheat bran |
| Pure Wheat Middlings | 5394 | 4.0 | 16.0 | 9.0 | | Wheat middlings |
| Omco Mixed Feed | 6712 | 3.8 | 14.0 | 12.0 | | Wheat bran, shorts, corn bran, ground wheat screenings |
| Champion Mixed Feed | 9208 | 3.3 | 12.0 | 12.0 | | Corn, wheat bran, wheat middlings, shelled oats, corn bran, ground wheat screenings |
| Ogle-Cook Grain Company, Hamlet, Ind. | | | | | | |
| Corn & Oats Chop | 8553 | 3.5 | 9.0 | 6.0 | | Corn, oats |
| Oldenburg Flour Mills, Oldenburg, Ind. | | | | | | |
| Mixed Feed | 489 | 3.2 | 12.8 | 10.0 | | Wheat bran, whole wheat screenings |
| Wheat Shorts | 2663 | 3.0 | 13.1 | 8.0 | | Wheat shorts |
| Orangeville Flour Mills, Orangeville, Ind. | | | | | | |
| Corn Bran | 9154 | 7.0 | 10.0 | 7.0 | | Corn bran |
| Oriole Milling Company, Oriole, Ind. | | | | | | |
| Wheat Bran | 7389 | 3.5 | 13.5 | 10.0 | | Wheat bran |
| Wheat Shorts | 7390 | 3.5 | 13.5 | 7.5 | | Wheat shorts |
| Orleans Mill & Elevator Company, Orleans, Ind. | | | | | | |
| Wheat Middlings | 7019 | 4.0 | 14.0 | 8.0 | | Wheat middlings |
| Mixed Feed | 7020 | 3.4 | 12.5 | 10.0 | | Wheat bran, corn bran, crushed wheat screenings |
| Feed Meal | 7451 | 5.0 | 9.0 | 6.0 | | Corn, corn feed meal |
| Osakis Milling Company, Osakis, Minn. | | | | | | |
| Fancy Bran | 3194 | 4.0 | 14.0 | 12.0 | | Wheat bran |
| Fancy Middlings | 3195 | 4.0 | 15.0 | 8.0 | | Wheat middlings |
| Osgood Flour Mills, Osgood, Ind. | | | | | | |
| Mixed Mill Feed | 3289 | 3.0 | 12.0 | 10.0 | | Wheat bran, middlings |
| Ossian Roller Mills, Ossian, Ind. | | | | | | |
| Wheat Middlings | 6399 | 3.1 | 13.5 | 9.9 | | Wheat middlings |
| Wheat Bran and Ground Wheat Screenings | 6400 | 3.5 | 13.5 | 9.0 | | Wheat bran, ground wheat screenings |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Otwell Milling Company, Otwell, Ind. Otwell's No. 1 Mixed Feed ----- | 3828 | 3.2 | 13.0 | 12.0 | Wheat bran, middlings, wheat screenings, corn bran |
| Oxford Feed Mill, Oxford, Ind. Corn Bran ----- | 9418 | 2.5 | 7.0 | 10.0 | Corn bran |
| Page Milling Company, Thomas, Topeka, Kans. Wheat Mixed Feed with Ground Screenings (Not Exceeding 5% Screenings) ----- | 8195 | 3.0 | 16.0 | 10.0 | Wheat bran, shorts, not exceeding 5% ground wheat screenings |
| Bran and Screenings ----- | 8399 | 3.5 | 15.5 | 10.0 | Wheat bran, not to exceed 5% ground wheat scorings |
| Pure Wheat Shorts ----- | 8693 | 3.0 | 15.0 | 6.0 | Wheat shorts |
| Pancost Milling Company, Elkhart, Ind. Middlings ----- | 800 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Paoli Milling Company, The, Paoli, Ind. Shorts ----- | 627 | 3.0 | 12.0 | 8.0 | Wheat shorts |
| Paoli Mixed Feed ----- | 2820 | 3.0 | 10.0 | 12.0 | Wheat bran, shorts, whole wheat screenings, corn bran |
| Clear Mill Feed ----- | 3019 | 3.0 | 12.0 | 11.0 | Wheat bran, whole wheat screenings |
| Paragon Roller Mills, Paragon, Ind. Mixed Feed ----- | 1526 | 3.8 | 12.0 | 10.0 | Wheat bran, middlings, corn bran |
| Park & Pollard Company of Illinois, The, Chicago, Ill. The Park & Pollard Co. of Illinois' Wheat Bran with Ground Screenings Not Exceed- ing Mill Run ----- | 9159 | 4.0 | 14.5 | 12.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| The Park & Pollard Co. of Illinois Wheat Standard Middlings with Ground Screen- ings Not Exceeding Mill Run ----- | 9160 | 5.0 | 15.0 | 9.5 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Paxson, Charles E., Elkhart, Ind. Paxson's Corn and Oats Chop ----- | 868 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Chop Feed ----- | 6407 | 3.0 | 9.0 | 7.0 | Corn, oats, corn feed meal |
| Pearson, Warren W., Upland, Ind. Eureka Feed ----- | 1764 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Mixed Feed ----- | 5953 | 2.5 | 10.0 | 8.0 | Wheat bran, middlings, ground wheat screenings, ground rye |
| Pearson's Mixed Feed ----- | 8559 | 3.0 | 13.0 | 12.0 | Wheat bran, wheat middlings, ground wheat screenings |
| Wheat Bran & Screenings ----- | 8560 | 3.0 | 13.0 | 12.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings & Screenings ----- | 8561 | 3.0 | 13.0 | 10.0 | Wheat middlings, ground wheat screenings |
| Pendleton Feed & Fuel Company, Pendleton, Ind. Wheat Bran ----- | 3279 | 3.5 | 14.0 | 10.0 | Wheat bran |
| Corn Feed Meal ----- | 5146 | 3.0 | 7.0 | 6.0 | Corn feed meal |
| Pennville Milling Company, Pennville, Ind. Wheat Middlings ----- | 3545 | 3.0 | 13.0 | 7.0 | Wheat middlings |
| Wheat Bran & Ground Wheat Screenings ----- | 5563 | 2.9 | 12.0 | 10.0 | Wheat bran, ground wheat screenings |
| Wheat Bran & Corn Bran ----- | 8099 | 2.9 | 12.0 | 11.0 | Wheat bran, corn bran |
| Perrysville Flour Mills, Perrysville, Ind. "Victor" ----- | 2674 | 2.4 | 9.0 | 13.0 | Wheat bran, corn bran |
| Peru Milling Company, Peru, Ind. Wheat Bran & Screenings ----- | 17 | 3.1 | 14.5 | 10.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings ----- | 18 | 3.1 | 14.2 | 7.0 | Wheat middlings |
| Chop Feed ----- | 19 | 3.2 | 8.8 | 4.0 | Corn, oats |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Petersburg Milling & Grain Company, Petersburg, Ind. Petersburg "A" Mixed Feed ----- | 7765 | 3.0 | 13.0 | 11.5 | Wheat bran, middlings, ground wheat screenings, corn bran, corn feed meal |
| Pfeffer Milling Company, Lebanon, Ill. Wheat Middlings with Mill Run Wheat Screenings ----- | 7528 | 5.0 | 13.0 | 6.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Phillips, J. C., Star City, Ind. "A" Chop Feed ----- | 7737 | 3.0 | 10.0 | 10.0 | Corn, oats, rye, wheat |
| Phillips & Ross Grain Company, Rosedale, Ind. Mill Feed ----- | 3096 | 2.0 | 5.0 | 4.0 | Wheat, corn, oats, ground wheat screenings |
| Phoenix Flour Mill, Evansville, Ind. Bran & Screenings ----- | 2252 | 4.0 | 15.0 | 10.0 | Wheat bran, ground wheat screenings |
| Phoenix "A" Mixed Feed ----- | 2253 | 4.0 | 15.0 | 9.0 | Wheat bran, middlings, ground wheat screenings |
| Wheat Middlings and Ground Screenings ----- | 6856 | 4.0 | 15.5 | 8.0 | Wheat middlings, ground wheat screenings |
| Rye Mill Feed and Ground Rye Mill Run Screenings ----- | 9206 | 3.8 | 15.5 | 6.5 | Rye bran, rye middlings, mill run ground rye screenings |
| Phoenix Milling Company, Davenport, Iowa Bran ----- | 8987 | 4.1 | 15.3 | 13.1 | Wheat bran |
| Shorts ----- | 9017 | 5.9 | 17.6 | 7.0 | Wheat shorts |
| Bran with Scourings not Exceeding Mill Run ----- | 9056 | 4.1 | 15.3 | 13.0 | Wheat bran, scourings not exceeding mill run |
| Pierce Elevator Company, Union City, Ind. Pierce's Corn & Oats Chop ----- | 399 | 3.8 | 9.4 | 7.0 | Corn, oats |
| Wheat Middlings ----- | 2623 | 4.0 | 14.0 | 9.0 | Wheat middlings |
| Mixed Feed ----- | 2624 | 3.8 | 13.0 | 12.0 | Wheat bran, ground wheat screenings |
| Corn Bran ----- | 9375 | 2.5 | 7.0 | 10.0 | Corn bran |
| Pillsbury Flour Mills Company, Minneapolis, Minn. Durum Wheat Bran with Ground Screenings not Exceeding Mill Run ----- | 6809 | 4.0 | 11.0 | 14.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Durum Wheat "B" Middlings with Ground Screenings not Exceeding Mill Run ----- | 6870 | 4.0 | 12.5 | 11.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Pillsbury's Wheat Bran with Ground Screenings not Exceeding Mill Run ----- | 7133 | 4.0 | 13.0 | 13.0 | Wheat bran, ground wheat screenings |
| Pillsbury's Wheat Standard "B" Middlings with Ground Screenings not Exceeding Mill Run ----- | 7134 | 4.0 | 14.0 | 11.0 | Wheat middlings, ground wheat screenings |
| Pillsbury's Wheat "A" Middlings with Ground Screenings not Exceeding Mill Run ----- | 7135 | 4.0 | 15.0 | 8.0 | Wheat middlings, low grade wheat flour, ground wheat screenings |
| Pillsbury's Fancy Wheat Mixed Feed with Ground Screenings not Exceeding Mill Run ----- | 7136 | 4.0 | 14.0 | 10.0 | Wheat bran, low grade wheat flour, ground wheat screenings |
| Pillsbury's XX Daisy ----- | 7137 | 4.0 | 16.0 | 4.0 | Low grade wheat flour |
| Pillsbury's Rye Middlings with Ground Screenings not Exceeding Mill Run ----- | 8519 | 3.5 | 15.0 | 9.0 | Rye middlings, ground rye screenings |
| Pinecoffs Company, Maurice, Chicago, Ill. Pineco Brand Standard Middlings and Screenings ----- | 8735 | 4.0 | 15.0 | 7.0 | Wheat middlings, ground wheat screenings |
| Pineco Brand Wheat Bran and Screenings ----- | 8736 | 3.5 | 14.0 | 10.0 | Wheat bran, ground wheat screenings |
| Pineco Brand Barley Mixed Feed ----- | 9328 | 3.0 | 12.0 | 8.0 | Barley bran, barley middlings, barley hulls |
| Piqua Milling Company, Piqua, Ohio Wheat Middlings ----- | 2295 | 4.0 | 16.0 | 7.0 | Wheat middlings |
| Wheat Bran ----- | 2296 | 3.0 | 14.0 | 10.0 | Wheat bran |
| Bran and Middlings Mixed ----- | 5295 | 3.0 | 14.0 | 8.0 | Wheat bran, middlings |
| Pitman, H. E., Bedford, Ind. Chop Feed ----- | 387 | 3.2 | 8.8 | 4.0 | Corn, oats |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Plainfield Milling Company, Plainfield, Ind. Bran & Screenings ----- | 2339 | 3.5 | 14.0 | 10.0 | Wheat bran, ground wheat screenings, corn bran |
| Wheat Middlings ----- | 4408 | 3.5 | 13.0 | 7.0 | Wheat middlings |
| Corn Feed Meal ----- | 7923 | 2.0 | 5.0 | 4.0 | Corn feed meal |
| Corn Bran ----- | 8356 | 1.0 | 5.0 | 26.5 | Corn bran |
| Plainville Mill & Elevator Company, Plainville, Kansas Bran & Screenings ----- | 7830 | 4.0 | 16.5 | 10.0 | Wheat bran, whole wheat screenings |
| Shorts ----- | 7831 | 4.0 | 17.0 | 3.5 | Wheat shorts |
| Plainville Milling Company, Plainville, Ind. Corn Bran ----- | 3819 | 4.0 | 7.5 | 14.0 | Corn bran |
| Middlings ----- | 3895 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Milled Feed ----- | 4140 | 1.5 | 4.5 | 14.0 | Corn, oats, ground wheat screenings |
| Wheat Bran ----- | 4372 | 3.8 | 14.2 | 10.0 | Wheat bran |
| Millfeed ----- | 5057 | 3.5 | 14.0 | 7.5 | Wheat bran, wheat middlings |
| Corn Feed Meal ----- | 5162 | 2.5 | 6.8 | 5.0 | Corn feed meal |
| Plant Milling Company, Geo. P., St. Louis, Mo. (P) Bran & Screenings ----- | 4753 | 3.0 | 15.0 | 11.0 | Wheat bran, whole wheat screenings not exceeding mill run |
| (P) Mixed Feed & Screenings ----- | 4754 | 3.5 | 15.0 | 10.0 | Wheat bran, middlings, whole wheat screenings not exceeding mill run |
| (P) Wheat Middlings with Screenings not Exceeding Mill Run ----- | 5558 | 4.0 | 17.0 | 6.5 | Wheat middlings, whole wheat screenings not exceeding mill run |
| Plymouth Roller Mills, Plymouth, Ind. Wheat Bran ----- | 8051 | 3.8 | 15.0 | 10.0 | Wheat bran |
| Plotnicki & Company, Louis P., South Bend, Ind. Polonia Chop Feed ----- | 6033 | 3.5 | 9.0 | 9.0 | Corn, oats, corn feed meal |
| Mixed Feed ----- | 6892 | 3.0 | 13.5 | 10.0 | Wheat bran, ground wheat screenings |
| Middlings & Screenings ----- | 6893 | 3.0 | 13.0 | 8.0 | Wheat middlings, ground wheat screenings |
| Portland Equity Exchange, The, Portland, Ind. Corn Feed Meal ----- | 9241 | 2.0 | 7.5 | 11.0 | Corn feed meal |
| Poseyville Milling Company, The, Poseyville, Ind. Wheat Shorts & Screenings ----- | 7676 | 4.0 | 14.0 | 8.0 | Wheat shorts, ground wheat screenings |
| Mixed Bran and Screenings ----- | 7677 | 3.7 | 14.0 | 11.0 | Wheat bran, corn bran, ground wheat screenings |
| Prairie State Milling Company, Chicago, Ill. Garland Wheat Bran and Screenings ----- | 6845 | 3.5 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Wheat Standard Middlings with Ground Screenings Not Exceeding Mill Run ----- | 7412 | 4.0 | 14.0 | 10.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Prater-Mottier Company, Terre Haute, Ind. Corn Feed Meal ----- | 7704 | 2.0 | 7.0 | 5.5 | Corn feed meal |
| Praters Wheat Bran & Screenings ----- | 8145 | 3.0 | 10.0 | 14.0 | Wheat bran, ground wheat screenings |
| Praters Mixed Feed ----- | 8174 | 4.0 | 14.5 | 9.0 | Wheat bran, wheat middlings, ground wheat screenings |
| Princeton Milling Company, Princeton, Ind. Star Brand Mixed Feed ----- | 1978 | 3.5 | 13.0 | 7.0 | Wheat bran, middlings, ground wheat screenings |
| Star Feed ----- | 8618 | 3.5 | 13.5 | 11.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings ----- | 8619 | 3.5 | 13.5 | 6.0 | Wheat middlings |
| Probst & Kassebaum, Indianapolis, Ind. Mixed Feed ----- | 7081 | 3.5 | 16.0 | 10.0 | Wheat bran, middlings, crushed wheat screenings |
| Puritan Mills, The, Medora, Ind. Puritan Feed Meal ----- | 8645 | 2.5 | 8.0 | 7.0 | Corn feed meal |
| Puritan Mixed Feed ----- | 8904 | 3.6 | 14.0 | 8.5 | Wheat bran, middlings, ground wheat screenings, corn bran |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Purity Oats Company of Davenport, Davenport, Iowa Oat Middlings ----- | 8440 | 5.5 | 14.0 | 10.0 | Oat middlings |
| Pymont Mills Company, Pymont, Ind. Pymont Corn and Oats Chop ----- | 5839 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Pymont Bran ----- | 7157 | 3.0 | 14.0 | 10.0 | Wheat bran |
| Rakestraw, H. E., Oakford, Ind. Perfection Corn and Oats Chop ----- | 6495 | 3.5 | 9.0 | 6.0 | Corn, oats |
| "A" Perfection Chop Feed ----- | 6496 | 3.5 | 9.0 | 10.0 | Corn, oats, corn feed meal |
| Raper & Company, T. A., Spencer, Ind. Raper's Mixed Feed ----- | 2375 | 3.5 | 14.0 | 6.0 | Wheat bran, shorts, oats, corn |
| Rankin & Company, M. G., Milwaukee, Wis. Jersey Rye Middlings with Ground Screenings Not Exceeding Mill Run ----- | 8679 | 3.0 | 14.0 | 3.0 | Rye middlings, ground rye screenings not exceeding mill run |
| Wheat Middlings with Ground Screenings Not Exceeding Mill Run ----- | 8680 | 4.0 | 15.0 | 8.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Wheat Bran with Ground Screenings not Exceeding Mill Run ----- | 8681 | 4.0 | 14.0 | 9.5 | Wheat bran, ground wheat screenings not exceeding mill run |
| Rapier Grain & Seed Company, Owensboro, Ky. Shipstuff ----- | 7692 | 3.5 | 15.5 | 10.0 | Wheat bran, middlings |
| Raschka, William, Ainsworth, Ind. Wheat Bran & Ground Screenings ----- | 7436 | 3.5 | 13.5 | 11.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings & Ground Screenings ----- | 7437 | 3.5 | 13.5 | 10.0 | Wheat middlings, ground wheat screenings |
| Ray & Rice, Camden, Ind. Wheat Shorts ----- | 3602 | 3.0 | 14.0 | 8.0 | Wheat shorts |
| Wheat Bran ----- | 5342 | 3.3 | 14.0 | 10.0 | Wheat bran |
| Shorts & Low Grade Flour ----- | 8534 | 3.0 | 12.0 | 8.0 | Wheat shorts, low grade wheat flour |
| Red Mill, The, Fairland, Ind. Mixed Feed ----- | 2601 | 3.8 | 14.0 | 11.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings ----- | 3256 | 2.5 | 13.0 | 8.0 | Wheat middlings |
| "A" Mixed Feed ----- | 4538 | 3.5 | 13.0 | 12.0 | Wheat bran, whole wheat screenings, corn bran |
| Corn Feed Meal ----- | 4539 | 2.7 | 7.6 | 8.0 | Corn feed meal |
| Red Wing Milling Company, Red Wing, Minn. Bixota Standard Middlings ----- | 5493 | 5.7 | 18.3 | 7.5 | Wheat middlings |
| Bixota Flour Middlings ----- | 5494 | 5.1 | 16.1 | 3.0 | Wheat middlings |
| Bixota Wheat Bran with Ground Screenings ----- | 7158 | 4.8 | 14.0 | 13.2 | Wheat bran, ground wheat screenings not exceeding mill run |
| Bixota Wheat Middlings ----- | 7641 | 5.1 | 15.4 | 9.8 | Wheat middlings |
| Reed & Company, H. G., Clymers, Ind. Corn & Oats Chop ----- | 2323 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Chop Feed ----- | 5319 | 3.0 | 9.0 | 7.0 | Corn, oats, corn feed meal |
| Reiners, Wm. F., Birdseye, Ind. Reiners' Mixed Feed ----- | 7743 | 3.2 | 13.5 | 10.0 | Wheat bran, middlings, ground wheat screenings, corn bran, dust collector dust |
| Reserve Milling Company, Reserve, Ind. Wheat Bran & Shorts ----- | 3817 | 3.5 | 14.0 | 10.0 | Wheat bran, shorts |
| Rice Cereal Company, New Haven, Ind. Corn Feed Meal ----- | 9412 | 1.8 | 10.0 | 5.0 | Corn bran, corn germ, corn grits |
| Dairy Feed ----- | 9413 | 10.0 | 10.0 | 10.0 | Corn bran, corn germ |
| Richards & Son, G. W., New Paris, Ohio Richards Chop Feed ----- | 5073 | 3.3 | 10.0 | 5.7 | Corn, oats, rye, salt |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Richland Milling Company, Bloomfield, Ind. ²⁴ | | | | | | |
| Wheat Bran | 1149 | 3.5 | 14.0 | 10.0 | | Wheat bran |
| Mixed Feed | 6576 | 3.0 | 12.5 | 11.0 | | Wheat bran, middlings, corn bran, corn meal, corn feed meal, ground wheat screenings |
| Richland Mills, Bloomfield, R. R. 2, Ind. | | | | | | |
| Wheat Shorts | 8895 | 3.0 | 13.0 | 6.0 | | Wheat shorts |
| Richmond Corn Mills, Richmond, Ind. | | | | | | |
| Corn Bran | 1727 | 5.0 | 8.0 | 13.0 | | Corn bran |
| Rittenhouse, E. S., Liberty Mills, Ind. | | | | | | |
| Liberty Bird Bran | 3043 | 2.5 | 12.5 | 20.0 | | Wheat bran |
| Liberty Bird Middlings | 3044 | 2.5 | 12.5 | 20.0 | | Wheat middlings |
| River Side Barn & Feed Store, Marion, Ind. | | | | | | |
| Chop Feed | 7130 | 2.8 | 8.5 | 8.0 | | Corn, oats, corn feed meal |
| Riverside Milling Company, Clinton, Iowa | | | | | | |
| Bran | 5306 | 4.0 | 14.9 | 13.5 | | Wheat bran |
| Shorts | 5307 | 4.3 | 17.9 | 10.1 | | Wheat shorts |
| Tip Top Feed | 5308 | 3.6 | 14.7 | 4.4 | | Wheat middlings |
| Bran & Ground Screenings | 5092 | 4.0 | 14.9 | 13.5 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Roach & Rothenberger, Delphi, Ind. | | | | | | |
| Corn and Oats Chop | 284 | 3.9 | 9.5 | 6.0 | | Corn, oats |
| Shorts and Middlings | 286 | 4.0 | 14.0 | 8.0 | | Wheat shorts, middlings |
| A. Mixed Feed | 7730 | 3.8 | 11.0 | 12.0 | | Wheat bran, shorts, scourings, whole wheat screenings, corn bran |
| Robinson, Geo. M., Brewersville, Ind. | | | | | | |
| Corn Bran | 6524 | 6.0 | 9.0 | 7.0 | | Corn bran |
| Corn Feed Meal | 6980 | 2.5 | 7.5 | 5.0 | | Corn feed meal |
| Rochester Roller Mills, Rochester, Ind. | | | | | | |
| Middlings | 2169 | 4.0 | 14.0 | 8.0 | | Wheat middlings |
| Bran | 2170 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| Rockport Milling Company, Rockport, Ind. | | | | | | |
| A. Mixed Feed | 2247 | 3.9 | 13.3 | 11.0 | | Wheat bran, middlings, corn bran, ground wheat screenings |
| Bran & Screenings | 2248 | 3.8 | 13.3 | 11.0 | | Wheat bran, corn bran, ground wheat screenings |
| Kopp's Wheat Middlings | 2748 | 3.5 | 14.0 | 7.0 | | Wheat middlings |
| Kopp's Mixed Feed | 3679 | 3.0 | 10.0 | 9.0 | | Wheat bran, middlings, ground wheat screenings, corn bran, corn feed meal |
| Kopp's White Middlings | 7477 | 2.3 | 13.5 | 6.0 | | Wheat middlings |
| Corn Feed Meal | 9425 | 3.5 | 6.5 | 5.0 | | Corn feed meal |
| Rodger Bros., Hanover, Ind. | | | | | | |
| Wheat Middlings | 6916 | 2.5 | 12.5 | 7.0 | | Wheat middlings |
| Rohm Bros., Rockville, Ind. | | | | | | |
| Feed Meal | 5336 | 2.5 | 6.0 | 5.0 | | Corn feed meal |
| Mill Feed | 5671 | 3.5 | 15.0 | 10.0 | | Wheat bran, middlings, shorts, corn bran, ground wheat screenings |
| Shorts and Screenings Product | 8110 | 4.0 | 15.0 | 10.0 | | Wheat shorts, ground and bolted wheat screenings |
| Mixed Feed | 9376 | 3.0 | 15.0 | 10.0 | | Wheat bran, wheat middlings, rye bran, rye middlings, ground rye screenings, corn bran |
| Rohm Bros. & Company, Mansfield, Ind. | | | | | | |
| Shorts | 295 | 4.0 | 14.0 | 8.0 | | Wheat shorts |
| Mill Feed | 3991 | 3.0 | 14.0 | 10.0 | | Wheat bran, middlings, shorts, wheat screenings, corn bran |
| Rokowski, Alex, South Bend, Ind. | | | | | | |
| Wheat Middlings | 1961 | 4.0 | 14.0 | 7.0 | | Wheat middlings |

²⁴ Succeeded by Richland Mills

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Roper & Brown, Hobart, Ind. | | | | | | |
| Hobart Wheat Bran ----- | 4178 | 3.5 | 14.0 | 10.0 | Wheat bran | |
| Hobart Chop Feed ----- | 4409 | 3.8 | 9.5 | 6.0 | Corn, oats | |
| Hobart Wheat Middlings ----- | 5960 | 3.5 | 14.0 | 7.0 | Wheat middlings | |
| Hobart "Rye Feed" ----- | 5993 | 2.0 | 13.0 | 8.0 | Rye bran, rye middlings | |
| Buckwheat Mixed Feed ----- | 6218 | 3.0 | 12.6 | 35.0 | Buckwheat middlings, buckwheat hulls | |
| Wheat Middlings with Screenings ----- | 7684 | 3.5 | 14.0 | 11.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Wheat Bran with Screenings ----- | 7685 | 3.5 | 14.0 | 13.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Rose Milling Company, Alfordsville, Ind. ²⁵ | | | | | | |
| Wheat Middlings ----- | 909 | 4.0 | 14.0 | 7.0 | Wheat middlings | |
| Bran ----- | 910 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Rothrock, Julius, White Cloud, Ind. | | | | | | |
| Julius Rothrock's Mixed Feed ----- | 4553 | 3.5 | 14.0 | 9.0 | Wheat bran, middlings, crushed wheat screenings, corn bran | |
| Rouse & Son, Wm., Indianapolis, Ind. | | | | | | |
| Mixed Feed ----- | 3191 | 3.7 | 13.5 | 12.0 | Wheat bran, shorts, ground wheat screenings, corn bran | |
| Corn Feed Meal ----- | 7114 | 2.5 | 7.5 | 5.0 | Corn feed meal | |
| Ruff, G. W., Springport, Ind. | | | | | | |
| Mixed Feed ----- | 5853 | 2.7 | 10.0 | 11.0 | Wheat bran, corn bran, ground wheat screenings | |
| Wheat Middlings ----- | 5854 | 2.8 | 12.5 | 8.0 | Wheat middlings | |
| Ruoff, Geo. D., Osgood, Ind. | | | | | | |
| Rye Shorts ----- | 2869 | 2.5 | 14.0 | 7.0 | Rye shorts | |
| Wheat Shorts ----- | 3054 | 3.0 | 13.0 | 10.0 | Wheat shorts | |
| Wheat Bran ----- | 3055 | 3.0 | 12.0 | 12.0 | Wheat bran | |
| Wheat Shorts & Crushed Wheat Screenings----- | 7712 | 3.0 | 13.0 | 10.0 | Wheat shorts, crushed wheat screenings | |
| Russell & Company, Portland, Ind. | | | | | | |
| Chop Feed ----- | 6798 | 3.0 | 8.7 | 7.0 | Corn, oats, corn feed meal | |
| Russell-Miller Milling Company, Fargo, N. D. | | | | | | |
| Bran ----- | 3584 | 4.0 | 13.0 | 11.0 | Wheat bran | |
| Red Dog ----- | 3585 | 4.5 | 17.0 | 6.0 | Low grade wheat flour containing the finer particles of wheat bran | |
| Standard Middlings ----- | 5182 | 4.0 | 15.0 | 9.0 | Wheat middlings | |
| Russell-Miller Milling Company, Minneapolis, Minn. | | | | | | |
| Rich Country Middlings ----- | 7780 | 5.0 | 15.0 | 6.0 | Wheat middlings | |
| Flour Middlings ----- | 7810 | 5.0 | 15.0 | 6.0 | Wheat middlings | |
| Occident Mixed Feed ----- | 8156 | 4.5 | 15.0 | 10.0 | Wheat bran, middlings, red dog flour | |
| Corn Mill Feed ----- | 9253 | 10.0 | 10.0 | 12.0 | Corn bran, corn middlings | |
| Rye Middlings ----- | 9390 | 3.5 | 16.0 | 9.0 | Rye middlings | |
| Russell Milling Company, Russell, Kansas | | | | | | |
| Wheat Shorts ----- | 1801 | 4.5 | 17.0 | 7.4 | Wheat shorts | |
| Wheat Middlings ----- | 1802 | 5.6 | 18.0 | 5.2 | Wheat middlings | |
| Wheat Bran ----- | 18.3 | 4.0 | 15.0 | 10.0 | Wheat bran | |
| Sage, L. L., Adamsville, Mich. | | | | | | |
| Sage's Perfection Corn and Oats Chop ----- | 4619 | 3.9 | 9.8 | 6.0 | Corn, oats | |
| Sager's Mill, Valparaiso, Ind. | | | | | | |
| Mixed Feed ----- | 6189 | 3.0 | 13.0 | 7.0 | Wheat bran, middlings | |
| Sahm, Adam, Lawrenceville, Ind. | | | | | | |
| Sahms Middlings ----- | 560 | 4.0 | 15.6 | 5.4 | Wheat middlings | |
| Sahms Wheat Bran ----- | 561 | 3.7 | 14.0 | 10.7 | Wheat bran | |

²⁵ Succeeded by F. N. Baker

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent, crude fat | Not less than per cent, crude protein | Not more than per cent, crude fiber | |
| Salem Farmers Milling Company, Salem, Ind. Star Mixed Feed ----- | 3654 | 3.5 | 13.5 | 11.0 | Wheat bran, ground wheat screenings, corn bran |
| Wheat Shorts ----- | 6922 | 2.0 | 12.0 | 7.0 | Wheat shorts |
| Schaefer, Karl H., Indianapolis, Ind. Schaefer's Special Corn Feed Meal ----- | 8119 | 3.0 | 8.0 | 5.0 | Corn feed meal |
| Corn Bran ----- | 9230 | 2.5 | 7.0 | 10.0 | Corn bran |
| Schaefer & Schwartzkopf, Columbus, Ind. No. 6 Corn Bran ----- | 476 | 5.0 | 8.0 | 13.0 | Corn bran |
| Acorn Wheat Middlings ----- | 2102 | 2.0 | 11.0 | 7.0 | Wheat middlings |
| Mixed Feed ----- | 4522 | 3.5 | 14.0 | 10.0 | Wheat bran, middlings, ground wheat screenings |
| Sehlt, W. F., Bremen, Ind. Wheat Shorts & Screenings ----- | 6588 | 3.8 | 14.0 | 8.0 | Wheat shorts, ground wheat screenings |
| Wheat Bran ----- | 7971 | 3.7 | 14.0 | 10.0 | Wheat bran |
| Corn Bran ----- | 9244 | 2.0 | 7.0 | 15.0 | Corn bran |
| Sehnaible Grain Company, The Matt, LaFayette, Ind. Mixed Ground Corn and Oats ----- | 3 | 3.0 | 9.0 | 7.0 | Corn, oats |
| Schnell, Joseph, Schnellville, Ind. Shipstuff ----- | 7068 | 2.5 | 12.0 | 6.0 | Wheat bran, middlings |
| Schneider Milling & Baking Company, The John, Cincinnati, Ohio Rye Feed ----- | 5851 | 3.7 | 14.0 | 7.0 | Rye bran, rye middlings |
| Scholl & Tieteman, Weisburg, Ind. Wheat Middlings & Screenings ----- | 7679 | 4.0 | 14.0 | 7.0 | Wheat middlings, ground wheat screenings |
| Big Four Mixed Feed ----- | 8641 | 3.6 | 13.5 | 10.0 | Wheat bran, shorts, corn bran, ground wheat screenings |
| Schreiber Hay & Grain Company, St. Joseph, Mo. Wheat Bran & Screenings ----- | 7750 | 3.5 | 14.0 | 10.5 | Wheat bran, ground wheat screenings |
| Flour Middlings ----- | 7751 | 3.0 | 15.0 | 5.5 | Wheat middlings |
| Schreiber Milling & Grain Company, St. Joseph, Mo. Wheat Bran & Screenings ----- | 8846 | 3.5 | 14.0 | 10.5 | Wheat bran, ground wheat screenings |
| Wheat Shorts ----- | 8847 | 3.0 | 15.0 | 8.5 | Wheat shorts |
| Flour Middlings ----- | 8848 | 3.0 | 16.0 | 6.5 | Wheat flour middlings |
| Schrock, M. C., Goshen, Ind. Corn & Oats Chop ----- | 2759 | 3.5 | 9.0 | 7.0 | Corn, oats |
| Schroeder, E. F., Crown Point, Ind. ²⁶ Corn & Oats Chop ----- | 1356 | 3.5 | 9.0 | 9.0 | Corn, oats |
| Schulenburg & Donselman, Dillsboro, R. R. 3, Ind. Wheat Shorts ----- | 2578 | 3.3 | 13.3 | 8.0 | Wheat shorts |
| Wheat Bran and Screenings ----- | 9225 | 3.0 | 12.0 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Corn Bran ----- | 9226 | 2.5 | 7.0 | 10.0 | Corn bran |
| Schulte, W. C., Freelandville, Ind. Mixed Feed ----- | 6434 | 4.0 | 14.1 | 9.0 | Wheat bran, shorts, ground wheat screenings, corn bran, low grade flour |
| Wheat Bran ----- | 6435 | 3.6 | 12.0 | 10.0 | Wheat bran |
| Wheat Shorts ----- | 6433 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Corn Bran ----- | 9217 | 2.5 | 7.0 | 10.0 | Corn bran |

²⁶ Succeeded by Ernest H. Hixon

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Schultz, Baujan & Company, Beardstown, Ill. Sunbeam Middlings and Screenings ----- | 5967 | 4.0 | 15.0 | 9.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Sunbeam Bran ----- | 6013 | 3.5 | 14.0 | 10.0 | Wheat bran |
| Schultz Bros., Elberfeld, Ind. Wheat Bran and Screenings ----- | 3924 | 3.5 | 13.5 | 10.0 | Wheat bran, crushed wheat screenings |
| Middlings ----- | 3925 | 4.0 | 14.0 | 8.0 | Wheat middlings |
| Schuppert & Sons, M., Depauw, Ind. Schupperts Wheat Middlings ----- | 6060 | 3.5 | 13.0 | 5.0 | Wheat middlings |
| Schupperts Mixed Feed ----- | 6522 | 3.5 | 14.0 | 11.0 | Wheat bran, corn bran, ground wheat screenings |
| Scientific Milling Company, Marion, Ind. Corn Bran ----- | 7148 | 3.5 | 7.0 | 10.0 | Corn bran |
| Scottsburg Milling Company, Scottsburg, Ind. Home Mixed Feed ----- | 6236 | 3.5 | 13.5 | 10.0 | Wheat bran, middlings, whole wheat screenings, corn bran |
| Seagly, A. J., Stroh, Ind. Corn & Oats Chop ----- | 1698 | 3.9 | 9.5 | 6.0 | Corn, oats |
| Seidel, W. T., Orland, Ind. ²⁷ Wheat Bran ----- | 6372 | 3.0 | 13.0 | 10.0 | Wheat bran |
| Wheat Middlings ----- | 6373 | 3.0 | 13.0 | 7.0 | Wheat middlings |
| Semon, F. T., Vernon, Ind. Semon's Mixed Feed ----- | 5631 | 3.0 | 12.0 | 12.0 | Wheat bran, shorts, corn bran |
| Shane Bros. & Wilson Company, Hastings, Minn. Cloverleaf Bran ----- | 4925 | 3.7 | 14.0 | 12.6 | Wheat bran |
| Wheat Standard Middlings with Ground Screenings not Exceeding Mill Run ----- | 8485 | 5.0 | 15.0 | 9.5 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Shane Bros. & Wilson Company, Minneapolis, Minn. Snowball Wheat Flour Middlings with Ground Screenings not Exceeding Mill Run ----- | 8901 | 4.5 | 15.0 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Barley Millfeed with Ground Barley Screenings ----- | 9326 | 3.1 | 8.5 | 21.0 | Barley hulls, barley bran, barley middlings, ground barley screenings |
| Shawnee Milling Company, Topeka, Kansas Wheat Bran with Screenings ----- | 7892 | 4.0 | 14.0 | 9.0 | Wheat bran, not to exceed 8% ground wheat screenings |
| Wheat Middlings ----- | 8852 | 4.0 | 16.0 | 7.0 | Wheat middlings |
| Sheaks, Irvin, Indiana Harbor, Ind. Wheat Bran & Screenings ----- | 6511 | 3.5 | 13.5 | 12.0 | Wheat bran, ground wheat screenings |
| Sheffield-King Milling Company, Minneapolis, Minn. "Fairybow" ----- | 7598 | 5.0 | 15.0 | 9.5 | Wheat middlings, pulverized wheat screenings |
| "Gold Mine" Feed ----- | 7599 | 4.5 | 15.0 | 9.9 | Wheat bran, shorts, low grade wheat flour, pulverized wheat screenings |
| "Whitehope" ----- | 7600 | 4.5 | 16.0 | 7.6 | Wheat middlings, pulverized wheat screenings |
| Low Grade ----- | 7601 | 4.6 | 16.9 | 1.7 | Low grade wheat flour |
| Fancy "Brodflake" ----- | 7602 | 3.5 | 13.5 | 12.7 | Wheat bran, ground wheat screenings |
| Sheldon & Company, Angola, Ind. Wheat Bran & Ground Wheat Screenings ----- | 6484 | 3.0 | 13.0 | 12.0 | Wheat bran, ground wheat screenings |
| Wheat Middlings & Ground Wheat Screenings ----- | 6485 | 3.5 | 14.0 | 10.0 | Wheat middlings, ground wheat screenings |

²⁷ Succeeded by Orland Milling Co.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Shellabarger Mill & Elevator Company, Salina, Kansas | | | | | | |
| Bran & Screenings ----- | 5820 | 3.0 | 16.0 | 11.0 | | Wheat bran, ground wheat screenings |
| Wheat Brown Shorts & Screenings ----- | 8078 | 3.0 | 16.0 | 6.5 | | Wheat brown shorts, ground wheat screenings, cleanings not to exceed 8% |
| Sheridan Milling Company, Sheridan, Ind. ²⁸ | | | | | | |
| Corn Bran ----- | 3232 | 3.5 | 8.0 | 14.0 | | Corn bran |
| Wheat Bran ----- | 5595 | 2.8 | 13.0 | 10.0 | | Wheat bran |
| Wheat Shorts ----- | 5596 | 1.7 | 11.0 | 6.0 | | Wheat shorts |
| Shetterly Bros., Lapel, Ind. | | | | | | |
| Bran and Middlings ----- | 2644 | 3.0 | 14.0 | 10.0 | | Wheat bran, middlings |
| Shields & Bliss, Sardinia, Ind. | | | | | | |
| Colonial Chop Feed ----- | 9351 | 3.0 | 9.0 | 11.0 | | Corn, oats, corn feed meal |
| Shine & Company, John H., New Albany, Ind. | | | | | | |
| Star Feed ----- | 863 | 4.0 | 14.0 | 8.0 | | Wheat bran, middlings, ground wheat screenings |
| Wheat Bran ----- | 2086 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| Star Middlings ----- | 5457 | 4.0 | 14.0 | 7.0 | | Wheat middlings |
| Star Feed Meal ----- | 5907 | 2.5 | 7.0 | 5.0 | | Corn feed meal |
| Corn Bran ----- | 6677 | 5.0 | 8.0 | 18.0 | | Corn bran |
| Shockley & Son, Madison, Ind. | | | | | | |
| Corn Bran ----- | 5448 | 3.5 | 7.0 | 15.0 | | Corn bran |
| Shotwell, Chas. A., Indianapolis, Ind. | | | | | | |
| Rye Middlings ----- | 2230 | 2.5 | 14.0 | 6.0 | | Rye middlings |
| Shotwell & Company, Chas. A., Indianapolis, Ind. | | | | | | |
| Blair's Bran ----- | 4514 | 3.5 | 14.0 | 9.5 | | Wheat bran |
| Sims Co-Operative Grain Company, Sims, Ind. | | | | | | |
| Chop Feed ----- | 8407 | 3.2 | 8.8 | 11.0 | | Corn, oats |
| Sims Milling Company, Frankfort, Ind. | | | | | | |
| Wheat Bran ----- | 6363 | 3.7 | 14.0 | 10.0 | | Wheat bran |
| Wheat Shorts ----- | 6304 | 4.0 | 14.0 | 8.0 | | Wheat shorts |
| Chop Feed ----- | 6723 | 3.0 | 9.0 | 8.0 | | Corn, oats, corn feed meal |
| Corn Bran ----- | 6926 | 3.5 | 8.0 | 13.0 | | Corn bran |
| Bran ----- | 8922 | 3.7 | 14.0 | 10.0 | | Wheat bran, corn bran |
| Simmerman, Jacob, Eaton, Ind. | | | | | | |
| Chop Feed ----- | 5722 | 3.4 | 8.7 | 9.0 | | Corn, oats, corn feed meal |
| Slick & Company, L. E., Bloomington, Ill. | | | | | | |
| Safety First Corn By-Product ----- | 8382 | 6.0 | 10.0 | 8.0 | | Corn feed meal (By-product from manufacture of table meal and grits by the degerminating process) |
| Slick's Safety First Wheat Bran with Screenings ----- | 8813 | 3.5 | 14.5 | 10.5 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Wirthmore Wheat Middlings and Ground Wheat Screenings not Exceeding Mill Run ----- | 8892 | 4.5 | 15.0 | 8.0 | | Wheat middlings, ground wheat screenings not exceeding mill run |
| Slick's Safety First Wheat Middlings ----- | 8893 | 4.0 | 15.0 | 8.0 | | Wheat middlings |
| Small & Company, W. H., Evansville, Ind. | | | | | | |
| Corn Bran ----- | 4447 | 3.0 | 6.0 | 15.0 | | Corn bran |
| Feed Meal ----- | 4537 | 1.0 | 7.0 | 17.0 | | Corn feed meal |
| Smith, A. S., Flint, Ind. | | | | | | |
| Wheat Bran ----- | 1660 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| Wheat Middlings ----- | 1661 | 4.0 | 14.0 | 7.6 | | Wheat middlings |

²⁸ Succeeded by Mendenhall & Weaver Co.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Smith, D. R., Tipton, Ind. | | | | | | |
| Corn Bran | 1543 | 5.0 | 8.0 | 13.0 | | Corn bran |
| Chop Feed | 3016 | 3.5 | 9.0 | 6.0 | | Corn, oats |
| Mixed Feed | 4081 | 3.0 | 14.0 | 6.5 | | Wheat bran, shorts, middlings |
| Smock & Caca, Noblesville, Ind. | | | | | | |
| Bran and Shorts | 1424 | 3.8 | 14.5 | 10.0 | | Wheat bran, shorts |
| Wheat Middlings | 6881 | 2.0 | 12.0 | 6.0 | | Wheat middlings |
| Smoker, Levi, Michigantown, Ind. | | | | | | |
| Corn & Oats Chop | 1562 | 3.9 | 9.0 | 9.0 | | Corn, oats |
| Snell Mill & Grain Company, The, Clay Center, Kansas | | | | | | |
| Wheat Bran | 4567 | 3.5 | 14.0 | 13.0 | | Wheat bran |
| Wheat Shorts | 4568 | 4.0 | 17.0 | 6.0 | | Wheat shorts |
| Snoddy, M. W., Covington, R. R. 1, Ind. | | | | | | |
| Wheat Bran and Screenings | 1071 | 3.5 | 13.0 | 10.0 | | Wheat bran, ground wheat screenings |
| Bran and Middlings | 4717 | 3.0 | 14.0 | 9.5 | | Wheat bran, middlings |
| Wheat Middlings | 4718 | 2.5 | 13.0 | 8.0 | | Wheat middlings |
| South Side Cereal Mills, Fort Wayne, Ind. | | | | | | |
| Wayne Wheat Middlings with Ground Wheat Screenings | 6252 | 4.0 | 14.0 | 7.0 | | Wheat middlings, ground wheat screenings |
| Wayne Wheat Bran & Ground Wheat Screen- ings | 6253 | 3.5 | 14.0 | 12.0 | | Wheat bran, ground wheat screenings |
| Southern Seed Company, Louisville, Ky. | | | | | | |
| Economy Wheat Shorts and Screenings..... | 8814 | 4.0 | 15.0 | 6.0 | | Wheat shorts, ground wheat screenings not exceeding mill run |
| Economy Wheat Bran and Screenings..... | 8815 | 4.0 | 14.5 | 9.5 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Economy Wheat Mixed Feed and Screenings.. | 8816 | 4.0 | 14.5 | 8.0 | | Wheat bran, shorts, ground wheat screenings not exceeding mill run |
| Southwestern Milling Company, Inc., The, Kansas City, Mo. | | | | | | |
| "Red Turkey" Pure Wheat Bran | 9144 | 4.0 | 14.5 | 11.8 | | Wheat bran |
| "Red Turkey" Wheat Brown Shorts and Wheat Scourings | 9145 | 4.2 | 15.0 | 8.5 | | Brown wheat shorts containing not more than 5% wheat scorings |
| "Red Turkey" Wheat Gray Shorts and Wheat Scourings | 9146 | 3.8 | 15.0 | 8.0 | | Brown wheat shorts, white wheat middlings containing not more than 3½% wheat scorings |
| "Red Turkey" Pure Wheat Fancy White Middlings | 9147 | 2.5 | 14.0 | 6.5 | | Wheat middlings |
| "S. W." Mixed Feed & Wheat Scourings..... | 9148 | 4.3 | 14.5 | 10.5 | | Wheat bran, brown wheat shorts containing not more than 2½% wheat scorings |
| "Aristos" Mixed Feed & Wheat Scourings.... | 9149 | 4.0 | 14.5 | 9.8 | | Wheat bran, brown wheat shorts, white wheat middlings containing not more than 2% wheat scorings |
| "Optima" Pure Soft Wheat Bran | 9150 | 3.5 | 14.0 | 12.4 | | Wheat bran |
| "Merit" Pure Mixed Feed | 9151 | 3.0 | 16.0 | 11.0 | | Wheat bran, brown wheat shorts |
| "Optima" Pure Soft Wheat Mixed Feed..... | 9152 | 3.2 | 15.8 | 10.6 | | Wheat bran, brown wheat shorts, white wheat middlings |
| South Whitley Mills, South Whitley, Ind. | | | | | | |
| Wheat Middlings | 2140 | 4.0 | 14.0 | 7.0 | | Wheat middlings |
| Wheat Bran | 2142 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| Sparks Milling Company, Alton, Ill. | | | | | | |
| Try Me Bran and Screenings | 6778 | 3.5 | 15.0 | 8.0 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Try Me Mixed Feed | 7687 | 3.5 | 16.0 | 9.0 | | Wheat bran, middlings, ground wheat screenings not exceeding mill run |
| Sparks Milling Company, Terre Haute, Ind. | | | | | | |
| Wabash Middlings | 2774 | 4.0 | 14.0 | 7.0 | | Wheat middlings |
| Wabash Bran and Screenings | 2775 | 3.5 | 14.0 | 11.0 | | Wheat bran, ground wheat screenings |
| Wabash Mixed Feed | 3011 | 3.5 | 14.0 | 11.0 | | Wheat bran, middlings, ground wheat screenings |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Spink Milling Company, The, Washington, Ind. Milt Feed ----- | 6332 | 3.5 | 12.5 | 10.0 | Wheat bran, middlings, corn bran, ground wheat screenings not exceeding mill run |
| Bran and Ground Screenings not Exceeding Mill Run ----- | 6597 | 3.5 | 12.0 | 10.0 | Wheat bran, corn bran, ground wheat screenings not exceeding mill run |
| Wheat Middlings ----- | 6960 | 3.7 | 14.0 | 10.0 | Wheat middlings |
| Fine Mixed Mill Feed ----- | 8137 | 3.5 | 14.0 | 10.0 | Wheat middlings, ground wheat screenings, corn feed meal |
| Spring Mill, Paoli, R. R. 4, Ind. Mixed Feed ----- | 2266 | 4.0 | 14.0 | 10.0 | Wheat bran, middlings |
| Springer, W. D., Fortville, Ind. Mixed Feed ----- | 7303 | 2.0 | 7.0 | 14.0 | Corn, oats, corn feed meal, corn bran, ground screenings from wheat, oats and corn and cob meal |
| Spring Valley Milling Company, The, French Lick, Ind. Valley Mixed Feed ----- | 6976 | 3.0 | 11.0 | 11.0 | Wheat bran, wheat middlings, ground wheat screenings, corn bran, corn feed meal |
| Squibb-Carter-Squibb Company, Lawrenceburg, Ind. Old Dearborn Mill Feed ----- | 9218 | 5.7 | 9.4 | 3.0 | Corn bran, corn germ meal, corn meal |
| Stader, Frank E., Evansville, Ind. Corn Bran ----- | 6343 | 5.0 | 8.0 | 15.0 | Corn bran |
| Stader's "Mixed" Horse Feed ----- | 8088 | 3.5 | 10.0 | 8.0 | Corn, oats, wheat bran, corn feed meal |
| Stafford, Frank, Bluffton, Ind. Chop Feed ----- | 3795 | 3.2 | 9.0 | 8.5 | Corn, oats |
| Stafford Grain Company, Hope, Ind. Corn Feed Meal ----- | 8533 | 2.5 | 7.5 | 5.0 | Corn feed meal |
| Stampers Creek Mill, Paoli, R. R. 2, Ind. Mixed Feed ----- | 2264 | 3.8 | 14.0 | 10.0 | Wheat bran, middlings |
| Standard-Tilton Milling Company, St. Louis, Mo. Wheat Bran & Screenings ----- | 5237 | 3.0 | 14.0 | 10.0 | Wheat bran, whole wheat screenings |
| Wheat Middlings with Screenings not Exceeding Mill Run ----- | 7013 | 4.0 | 15.0 | 6.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Wheat Mixed Feed with Screenings not Exceeding Mill Run ----- | 9065 | 4.0 | 15.0 | 9.0 | Wheat bran, wheat middlings, ground wheat screenings not exceeding mill run |
| St. Anthony Mill Company, St. Anthony, Ind. Wheat Bran, Shorts & Corn Bran ----- | 5262 | 3.0 | 13.0 | 12.0 | Wheat bran, shorts, corn bran |
| Star & Crescent Milling Company, Chicago, Ill. Crescent Middlings ----- | 3110 | 4.5 | 16.0 | 6.0 | Wheat middlings |
| Star Red Dog ----- | 4391 | 4.0 | 16.5 | 3.0 | Low grade wheat flour containing the finer particles of wheat bran |
| Star Middlings with Ground Screenings Not Exceeding Mill Run ----- | 5376 | 4.0 | 15.0 | 8.0 | Wheat middlings, ground wheat screenings not to exceed mill run |
| Star Bran with Ground Screenings Not Exceeding Mill Run ----- | 5377 | 4.0 | 15.0 | 10.0 | Wheat bran, ground wheat screenings not to exceed mill run |
| Crescent Bran with Ground Screenings Not Exceeding Mill Run ----- | 5378 | 4.0 | 15.0 | 10.0 | Wheat bran, ground wheat screenings not to exceed mill run |
| Barley Mixed Feed with Ground Barley Screenings not Exceeding Mill Run ----- | 9193 | 2.5 | 12.0 | 13.5 | Barley hulls, barley bran, barley middlings, ground barley screenings |
| Rye Mixed Feed with Ground Screenings not Exceeding Mill Run ----- | 9194 | 3.0 | 15.0 | 7.0 | Rye bran, rye middlings, ground rye screenings |
| Starlight Milling Company, Borden, R. R. 1, Ind. Mixed Feed ----- | 7794 | 2.0 | 12.0 | 10.0 | Wheat bran, middlings, corn bran |
| Wheat Middlings ----- | 7795 | 2.0 | 11.0 | 7.0 | Wheat middlings |
| Star Mill Company, Huntingburg, Ind. Star Mixed Feed ----- | 3509 | 3.5 | 13.5 | 12.0 | Wheat bran, middlings, whole wheat screenings, corn bran |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Star Milling Company, Aurora, Ind. | | | | | |
| Bran ----- | 1038 | 3.8 | 14.2 | 9.5 | Wheat bran |
| Middlings ----- | 2672 | 4.0 | 14.6 | 6.0 | Wheat middlings |
| Mixed Feed ----- | 2675 | 4.0 | 13.5 | 12.0 | Wheat bran, middlings, corn bran |
| Star Milling Company, Shoals, Ind. | | | | | |
| Star Wheat Bran ----- | 502 | 3.8 | 14.0 | 10.0 | Wheat bran |
| Star Shorts ----- | 503 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Star Mixed Feed ----- | 5783 | 3.0 | 13.0 | 10.0 | Oats, wheat bran, middlings, corn bran, ground wheat screenings |
| Star Roller Mills, Burlington, Ind. | | | | | |
| Chop Feed ----- | 3628 | 3.5 | 9.0 | 10.0 | Corn, oats |
| Star Mixed Feed ----- | 8396 | 3.0 | 14.0 | 11.5 | Wheat bran, middlings, ground wheat screenings |
| Pure Wheat Bran ----- | 8397 | 3.0 | 14.0 | 11.5 | Wheat bran |
| Star Roller Mills, Carlisle, Ind. | | | | | |
| Mixed Feed ----- | 5249 | 2.8 | 12.5 | 9.0 | Wheat bran, middlings, whole wheat screenings, corn bran |
| Star Supply Company, Elkhart, Ind. | | | | | |
| Star Chop Feed ----- | 2336 | 3.9 | 9.5 | 7.0 | Corn, oats |
| Starr Mills, South Bend, Ind. | | | | | |
| Wheat & Rye Middlings ----- | 6000 | 3.0 | 14.0 | 7.0 | Wheat middlings, rye middlings |
| Mixed Feed ----- | 6001 | 3.0 | 14.0 | 12.0 | Wheat bran, corn bran, rye bran, ground wheat screenings |
| Buckwheat Mixed Feed ----- | 8990 | 2.0 | 10.0 | 25.0 | Buckwheat hulls, buckwheat mid- dlings |
| Wheat and Rye Middlings and Corn Feed Meal ----- | 9177 | 2.0 | 10.0 | 9.0 | Wheat middlings, rye middlings, corn feed meal |
| St. Clair Roller Mills, Ft. Recovery, Ohio | | | | | |
| St. Clair Roller Mills Wheat Bran ----- | 1743 | 3.7 | 14.0 | 10.0 | Wheat bran |
| St. Clair Roller Mills Wheat Middlings ----- | 1744 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Steckley, George, Kendallville, Ind. | | | | | |
| Chop Feed ----- | 405 | 4.0 | 10.0 | 6.0 | Corn, oats |
| Bran & Screenings ----- | 5823 | 3.5 | 13.5 | 11.0 | Wheat bran, ground wheat screen- ings, corn bran |
| Mixed Feed ----- | 5834 | 4.0 | 14.0 | 8.0 | Wheat middlings, red dog flour, ground wheat screenings |
| Steeb, William, Crown Point, Ind. | | | | | |
| Chop Feed ----- | 8112 | 3.0 | 8.0 | 6.0 | Corn, oats, corn feed meal |
| Stendal Milling Company, Stendal, Ind. | | | | | |
| Mixed Feed ----- | 6981 | 3.0 | 13.0 | 10.0 | Wheat bran, middlings, corn bran |
| Stephensport Roller Mills, Stephensport, Ky. | | | | | |
| Mixed Feed ----- | 4828 | 3.9 | 14.0 | 12.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Shipstuff & Screenings ----- | 6374 | 4.1 | 16.0 | 8.5 | Wheat bran, middlings, red dog flour, 4% ground wheat screenings |
| Wheat Bran & Screenings ----- | 6620 | 4.0 | 15.0 | 8.0 | Wheat bran, 2% ground wheat screenings |
| Stevenson & Linebrink, Rochester, R. R. 9, Ind. ²⁹ | | | | | |
| Wheat Middlings ----- | 6017 | 2.5 | 12.0 | 7.0 | Wheat middlings |
| Wheat Bran ----- | 6018 | 2.5 | 12.0 | 10.0 | Wheat bran |
| Stiefel & Levy, Fort Wayne, Ind. | | | | | |
| Wheat Bran with Ground Wheat Screenings ----- | 8494 | 4.0 | 14.5 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Corn Mill Feed ----- | 9288 | 5.0 | 10.0 | 5.5 | Corn bran, corn germ, corn meal |
| St. Joe Milling Company, St. Joe, Ind. | | | | | |
| St. Joe's Chop Feed ----- | 5126 | 3.5 | 9.0 | 6.0 | Corn, oats |
| St. Joe's Wheat Middlings ----- | 5127 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Mixed Feed ----- | 8925 | 3.5 | 13.5 | 10.0 | Wheat bran, wheat middlings |
| Wheat Bran ----- | 8926 | 3.5 | 13.5 | 11.0 | Wheat bran |

²⁹ Succeeded by Millark Roller Mills

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| St. Mary's Mill Company, St. Mary's, Mo. "Wheat Middlings and Screenings" ----- | 8188 | 4.5 | 15.5 | 8.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Stokes Milling Company, Watertown, S. D. Wheat Bran with Ground Screenings not Exceeding Mill Run ----- | 8501 | 3.5 | 13.9 | 8.5 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Stone Quarry Mills, Spiceland, Ind. A. Mixed Feed ----- | 4746 | 2.5 | 14.0 | 9.0 | Wheat bran, middlings | |
| Stott, David, Detroit, Mich. Pennant Middlings ----- | 4461 | 5.0 | 15.0 | 7.0 | Wheat middlings | |
| Climax Middlings ----- | 5278 | 5.0 | 17.0 | 6.0 | Wheat middlings | |
| Stott Flour Mills, Inc., David, Detroit, Mich. Stott's Fine White Middlings ----- | 7672 | 4.5 | 15.0 | 6.0 | Wheat middlings | |
| Stott's Pure Winter Wheat Bran ----- | 8336 | 3.5 | 13.0 | 9.5 | Wheat bran | |
| St. Paul Milling Company, St. Paul, Minn. Komo Pure Wheat Bran ----- | 8899 | 4.0 | 14.0 | 12.0 | Wheat bran | |
| Komo Standard Middlings with Ground Screenings not Exceeding Mill Run ----- | 8900 | 4.5 | 15.0 | 10.5 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Studebaker Grain & Seed Company, Bluffton, Ind. Corn and Oats Chop ----- | 6739 | 3.9 | 9.5 | 6.0 | Corn, oats | |
| Suckow Company, Franklin, Ind. "Perfection" Wheat Middlings ----- | 5946 | 4.0 | 14.0 | 8.0 | Wheat middlings | |
| "Perfection" Wheat Bran ----- | 5947 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| "Perfection" Mixed Feed ----- | 6231 | 4.0 | 12.4 | 9.5 | Wheat bran, middlings, ground wheat screenings, corn bran | |
| Middlings and Screenings ----- | 7375 | 3.5 | 14.0 | 8.0 | Wheat middlings, ground wheat screenings | |
| Suckow's Corn By-Product ----- | 8521 | 6.0 | 9.0 | 7.0 | Corn feed meal, corn germ meal | |
| Corn Feed Meal ----- | 8589 | 2.5 | 7.5 | 5.0 | Corn feed meal | |
| Sullivan Mill & Elevator Company, Sullivan, Ind. Corn & Oats Chop ----- | 2959 | 3.5 | 9.0 | 6.0 | Corn, oats | |
| Mixed Feed ----- | 6977 | 3.4 | 12.0 | 10.0 | Wheat bran, shorts | |
| Corn Feed Meal ----- | 7777 | 2.5 | 7.5 | 5.0 | Corn feed meal | |
| Corn Bran ----- | 7778 | 3.0 | 7.0 | 13.0 | Corn bran | |
| White Middlings ----- | 8390 | 1.2 | 12.0 | 5.0 | Wheat middlings | |
| Sullivan Mixed Feed ----- | 9219 | 3.4 | 12.0 | 10.0 | Wheat bran, shorts, ground wheat screenings, corn bran | |
| Summerton & Sons, Wabash, Ind. "Chop Feed" ----- | 4658 | 2.0 | 8.0 | 6.0 | Corn, oats | |
| Swayzee Milling Company, Swayzee, Ind. Wheat Bran & Shorts ----- | 4475 | 3.8 | 13.5 | 10.0 | Wheat bran, shorts | |
| Sweet, W. G., Royal Center, Ind. Sweet's Corn & Oat Chop ----- | 704 | 3.9 | 9.5 | 6.0 | Corn, oats | |
| Syracuse Flour Mills, Syracuse, Ind. Wheat Middlings ----- | 6135 | 4.0 | 14.0 | 6.5 | Wheat middlings | |
| Bran ----- | 6136 | 4.0 | 14.0 | 11.0 | Wheat bran | |
| Tapp & Bridwell, Bloomington, Ind. Mixed Feed ----- | 54 | 4.0 | 14.0 | 10.0 | Wheat bran, middlings, whole wheat screenings, corn bran | |
| Ground Corn & Oats and Corn Feed Meal ----- | 4424 | 2.5 | 8.0 | 8.0 | Corn, oats, corn feed meal | |
| Wheat Shorts ----- | 4604 | 3.5 | 13.5 | 7.0 | Wheat shorts | |
| Corn Feed Meal ----- | 8584 | 2.0 | 9.0 | 7.0 | Corn feed meal | |
| Taylor, John H., Ogilville, Ind. Taylor's Mixed Feed ----- | 801 | 3.8 | 14.0 | 10.0 | Wheat bran, middlings | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Taylor-Hitz Company, Madison, Ind. | | | | | | |
| Middlings ----- | 413 | 4.0 | 14.0 | 7.0 | | Wheat middlings |
| Bran ----- | 414 | 3.7 | 14.0 | 10.0 | | Wheat bran, corn bran |
| Taylor-Hitz Co's Middlings and Screenings----- | 6313 | 3.7 | 14.0 | 11.0 | | Wheat middlings, ground wheat screenings |
| Mixed Feed ----- | 9142 | 3.7 | 14.0 | 11.0 | | Wheat bran, wheat middlings, corn bran, ground wheat screenings |
| Tell City Flouring Mills, Tell City, Ind. | | | | | | |
| Bran & Screenings ----- | 5640 | 4.0 | 14.0 | 10.0 | | Wheat bran, corn bran, ground wheat screenings not exceeding mill run |
| Wheat Middlings and Wheat Screenings Seasoned with Salt ----- | 6050 | 4.0 | 14.0 | 8.0 | | Wheat middlings, ground wheat screenings, salt |
| A. Mixed Feed ----- | 6051 | 4.0 | 14.0 | 9.7 | | Wheat bran, middlings, corn bran, ground wheat screenings, salt |
| Tennant & Hoyt Company, Lake City, Minn. | | | | | | |
| Wheat Bran and Screenings ----- | 6622 | 4.0 | 14.0 | 11.0 | | Wheat bran, ground wheat screenings not exceeding mill run |
| Wheat Middlings and Screenings ----- | 6623 | 5.0 | 16.0 | 8.0 | | Wheat middlings, ground wheat screenings not exceeding mill run |
| Thomas & Son, A. R., Markle, Ind. | | | | | | |
| Thomas' Wheat Bran ----- | 3187 | 3.2 | 14.0 | 9.5 | | Wheat bran |
| Thomas' Bran and Shorts ----- | 3188 | 3.2 | 14.1 | 9.0 | | Wheat bran, shorts |
| Wheat Shorts ----- | 3189 | 3.2 | 14.1 | 8.0 | | Wheat shorts |
| Corn, Oats & Rye Chop ----- | 4077 | 3.2 | 9.5 | 10.0 | | Corn, oats, rye |
| Wheat Bran, with Corn Bran and Ground Screenings ----- | 6337 | 3.5 | 14.0 | 9.5 | | Wheat bran, corn bran, ground wheat screenings |
| "Mixed Feed" ----- | 7514 | 3.5 | 14.5 | 9.5 | | Wheat bran, shorts, ground wheat screenings, corn bran |
| Corn Feed Meal ----- | 9426 | 3.0 | 8.0 | 2.5 | | Corn feed meal |
| Thompson, Edgar, Somerville, Ind. | | | | | | |
| Mixed Feed ----- | 7448 | 3.5 | 14.0 | 7.0 | | Wheat shorts, salt |
| Thornburg Milling Company, Martinsville, Ind. | | | | | | |
| Corn Feed Meal ----- | 8591 | 2.5 | 7.5 | 5.0 | | Corn feed meal |
| Thornburg Milling & Elevator Company, Martinsville, Ind. | | | | | | |
| Shorts ----- | 655 | 3.2 | 12.5 | 5.2 | | Wheat shorts |
| Bran ----- | 656 | 3.2 | 14.0 | 10.1 | | Wheat bran |
| Mixed Feed ----- | 2950 | 3.5 | 14.0 | 8.0 | | Wheat bran, shorts, corn bran, dust collector bran |
| Thorntown Grain Company, Thorntown, Ind. | | | | | | |
| Chop Feed ----- | 5586 | 3.0 | 9.0 | 7.0 | | Corn, oats, corn feed meal |
| Thurgood, Chas. R., Vincennes, Ind. | | | | | | |
| Mixed Bran and Screenings ----- | 8076 | 3.0 | 12.0 | 11.0 | | Wheat bran, corn bran, ground wheat screenings |
| Wheat Middlings ----- | 8077 | 3.0 | 13.0 | 8.0 | | Wheat middlings |
| Tilman, A. S., Wabash, Ind. | | | | | | |
| Corn & Oats Chop Feed ----- | 8915 | 4.0 | 10.0 | 8.0 | | Corn, oats |
| Timbrook & Hursh, Auburn, Ind. ³⁰ | | | | | | |
| Auburn Roller Mills Middlings ----- | 6985 | 3.4 | 14.0 | 7.0 | | Wheat middlings |
| Auburn Roller Mills Wheat Bran ----- | 7031 | 3.8 | 14.0 | 10.0 | | Wheat bran |
| Titus & Delph, Shirley, Ind. ³¹ | | | | | | |
| Mixed Bran ----- | 6486 | 3.0 | 13.0 | 10.0 | | Wheat bran, corn bran |
| Tobroeke, Henry, Waymansville, Ind. | | | | | | |
| Wheat Bran ----- | 1958 | 3.8 | 14.0 | 10.0 | | Wheat bran |

³⁰ Succeeded by H. W. Timbrook³¹ Succeeded by Geo. Logan

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Topeka Flour Mills Company, The, Topeka, Kansas | | | | | | |
| Wheat Shorts & Ground Screenings----- | 8019 | 3.0 | 14.5 | 3.5 | Wheat shorts, ground wheat screenings | |
| Wheat Bran and Scourings ----- | 8020 | 3.5 | 15.0 | 10.0 | Wheat bran, ground wheat scourings | |
| Tresselt & Sons, C., Fort Wayne, Ind. | | | | | | |
| Wheat Bran ----- | 409 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Wheat Shorts ----- | 410 | 4.0 | 14.0 | 8.0 | Wheat shorts | |
| Wheat Middlings ----- | 411 | 4.0 | 14.0 | 7.0 | Wheat middlings | |
| Trimble Milling Company, The, Milton, Ky. | | | | | | |
| Wheat Bran ----- | 1988 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Shipstuff ----- | 1989 | 4.0 | 14.0 | 7.0 | Wheat middlings | |
| Trow Company, W., Madison, Ind. | | | | | | |
| Trow's Mixed Feed ----- | 1965 | 4.0 | 14.0 | 8.5 | Wheat bran, middlings, ground wheat screenings not exceeding mill run | |
| Trow's Middlings & Screenings ----- | 1972 | 4.5 | 16.0 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Trow's Bran and Screenings ----- | 1973 | 3.5 | 14.0 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Truitt & O'Neal, East Enterprise, Ind. | | | | | | |
| Mixed Feed ----- | 8749 | 3.8 | 14.0 | 11.0 | Wheat bran, middlings, corn bran, ground wheat screenings not to exceed mill run | |
| Tuttle & Company, R., Columbia City, Ind. | | | | | | |
| Perfection Bran ----- | 817 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Perfection Middlings ----- | 818 | 4.0 | 14.0 | 7.0 | Wheat middlings | |
| Uhl-Snyder Milling Company, Connersville, Ind. | | | | | | |
| Bran ----- | 5135 | 3.5 | 14.0 | 12.0 | Wheat bran, corn bran | |
| Wheat Middlings ----- | 5136 | 3.7 | 14.0 | 7.0 | Wheat middlings | |
| Ulrey & Company, A. A., Fairmount, Ind. | | | | | | |
| Corn Feed Meal ----- | 3691 | 3.0 | 7.0 | 5.0 | Corn feed meal | |
| Mixed Feed ----- | 6901 | 3.0 | 13.5 | 11.0 | Wheat bran, middlings, ground wheat screenings, corn bran | |
| Ulrich & Sons, Levi, Greensboro, Ind. | | | | | | |
| Corn Bran ----- | 2961 | 5.5 | 8.5 | 13.0 | Corn bran | |
| Shorts ----- | 5396 | 2.0 | 12.0 | 7.0 | Wheat shorts | |
| Bran ----- | 5397 | 3.5 | 12.5 | 12.0 | Wheat bran | |
| Union Elevator Company, New Richmond, Ind. | | | | | | |
| Union Chop Feed ----- | 7755 | 3.0 | 9.0 | 8.0 | Corn, oats, corn feed meal | |
| Union Feed & Poultry Company, Lafayette, Ind. | | | | | | |
| Union Chop Feed ----- | 7182 | 3.5 | 9.5 | 7.0 | Corn, oats, corn feed meal | |
| Union Roller Mills, West Harrison, Ind. | | | | | | |
| Klewit's Wheat Middlings ----- | 7078 | 3.9 | 14.0 | 6.0 | Wheat middlings | |
| Klewit's Bran and Screenings ----- | 7544 | 3.7 | 14.0 | 9.0 | Wheat bran, ground wheat screenings, corn bran | |
| Upton Mill & Elevator Company, Minneapolis, Minn. | | | | | | |
| Corn Feed Meal ----- | 9335 | 5.7 | 9.5 | 6.5 | Corn feed meal | |
| Valentine & Valentine, Franklin, Ind. | | | | | | |
| Middlings ----- | 932 | 4.0 | 14.0 | 7.0 | Wheat middlings | |
| Mixed Feed ----- | 934 | 4.0 | 12.4 | 7.0 | Wheat bran, middlings, ground wheat screenings, corn bran | |
| Corn Bran ----- | 1999 | 3.9 | 6.9 | 11.0 | Corn bran | |
| Oat Chops ----- | 3295 | 3.5 | 9.0 | 8.0 | Corn, oats | |
| Middlings and Screenings ----- | 7455 | 3.5 | 14.0 | 8.0 | Wheat middlings, ground wheat screenings | |
| Wheat Bran and Screenings ----- | 8580 | 3.8 | 14.0 | 10.0 | Wheat bran, ground wheat screenings | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Valier & Spies Milling Company, St. Louis, Mo. | | | | | | |
| Valier's Mixed Feed ----- | 6127 | 4.0 | 15.0 | 9.0 | Wheat bran, middlings, 5% ground wheat screenings | |
| Valier's Wheat Bran with Ground Wheat Screenings ----- | 6156 | 3.5 | 14.5 | 10.0 | Wheat bran, 5% ground wheat screenings | |
| Valier's Wheat Middlings with Ground Wheat Screenings ----- | 6157 | 5.0 | 16.0 | 8.0 | Wheat middlings, 5% ground wheat screenings | |
| Valparaiso Grain & Elevator Company, Valparaiso, Ind. | | | | | | |
| Wheat Bran ----- | 1402 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Corn & Oats Chop ----- | 1403 | 3.5 | 9.0 | 9.0 | Corn, oats | |
| Wheat Shorts ----- | 1405 | 4.0 | 14.0 | 8.0 | Wheat shorts | |
| Red Dog Flour ----- | 1406 | 2.0 | 16.0 | 1.7 | Low grade wheat flour containing the finer particles of wheat bran | |
| Wheat Bran & Screenings ----- | 6008 | 3.8 | 14.0 | 11.0 | Wheat bran, ground wheat screenings | |
| Victoria Milling Company, Jasper, Ind. | | | | | | |
| Mixed Feed ----- | 2608 | 3.5 | 14.0 | 8.0 | Wheat bran, shorts | |
| Victoria Wheat Shorts ----- | 7170 | 3.3 | 15.0 | 8.0 | Wheat shorts | |
| Wabash Milling Company, Wabash, Ind. | | | | | | |
| Middlings ----- | 2 | 4.0 | 14.0 | 7.0 | Wheat middlings | |
| Summerton's Mixed Feed ----- | 5968 | 3.0 | 13.0 | 11.0 | Wheat bran, ground wheat screenings, corn bran | |
| Wagner-White Company, Inc., Jackson, Mich. | | | | | | |
| Bran with Screenings not to Exceed Mill Run ----- | 8854 | 5.0 | 14.0 | 11.0 | Wheat bran, ground wheat screenings not to exceed mill run | |
| Middlings with Screenings not to Exceed Mill Run ----- | 8855 | 4.5 | 14.0 | 7.0 | Wheat middlings, ground wheat screenings not to exceed mill run | |
| Rye Middlings ----- | 9251 | 3.0 | 14.0 | 8.0 | Rye middlings | |
| Mixed Feed ----- | 9374 | 3.0 | 9.0 | 17.0 | Barley bran, barley middlings, barley hulls, ground barley screenings, oat middlings, oat hulls | |
| Wakarusa Milling Company, Wakarusa, Ind. | | | | | | |
| Wakarusa Wheat Bran ----- | 1249 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Wakarusa Corn & Oats Chop ----- | 1250 | 3.9 | 9.5 | 10.0 | Corn, oats | |
| Wheat Middlings ----- | 7642 | 3.7 | 13.0 | 7.0 | Wheat middlings | |
| Walden, Sam, West Terre Haute, Ind. | | | | | | |
| Corn Grit ----- | 845 | 4.3 | 9.0 | 2.0 | Corn product | |
| Walker & Company, Peter M., Loogootee, Ind. | | | | | | |
| Wheat Middlings ----- | 538 | 4.0 | 14.2 | 5.7 | Wheat middlings | |
| Bran & Screenings ----- | 539 | 3.6 | 14.0 | 10.5 | Wheat bran, whole wheat screenings | |
| Walker & Son, J. M., Middletown, Ind. | | | | | | |
| Gilt Edge Bran ----- | 8161 | 3.2 | 12.0 | 10.0 | Wheat bran | |
| Gilt Edge Middlings ----- | 8162 | 3.7 | 14.0 | 7.0 | Wheat middlings | |
| Walker's Mixed Feed ----- | 8163 | 3.5 | 13.0 | 10.0 | Wheat bran, middlings, corn bran | |
| Corn Bran ----- | 9247 | 1.0 | 8.0 | 12.0 | Corn bran | |
| Wallace Milling Company, The, Dale, Ind. | | | | | | |
| Wallace's Pure Wheat Middlings ----- | 7747 | 4.0 | 15.0 | 6.0 | Wheat middlings | |
| Wallace's Mixed Feed ----- | 9204 | 3.9 | 14.2 | 10.0 | Wheat bran, middlings, corn bran, 5% ground wheat screenings | |
| "Rye Mixed Feed and Ground Rye Screenings" ----- | 9207 | 3.0 | 14.0 | 10.0 | Rye bran, rye middlings, mill run ground rye screenings | |
| Walnut Creek Milling Company, Great Bend, Kansas | | | | | | |
| Wheat Bran ----- | 8121 | 3.5 | 14.5 | 10.0 | Wheat bran | |
| Wheat Shorts ----- | 8122 | 3.5 | 16.0 | 5.5 | Wheat shorts | |
| Walton, A. G., Atlanta, Ind. | | | | | | |
| Mixed Feed ----- | 8677 | 3.4 | 14.9 | 11.1 | Wheat bran, middlings, ground wheat screenings | |
| Walton & Whisler, Atlanta, Ind. ³² | | | | | | |
| A. Mixed Feed ----- | 7638 | 3.0 | 14.0 | 10.0 | Wheat bran, middlings, ground wheat screenings | |

³² Succeeded by A. G. Walton

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Waltz & Company, J. W., New Palestine, Ind. | | | | | |
| New Palestine Wheat Middlings ----- | 685 | 2.0 | 12.0 | 5.0 | Wheat middlings |
| Mixed Feed ----- | 2923 | 3.7 | 13.0 | 12.0 | Wheat bran, ground wheat screenings, corn bran |
| Corn Feed Meal ----- | 3341 | 3.0 | 8.5 | 6.0 | Corn feed meal |
| Washburn-Crosby Company, Minneapolis, Minn. | | | | | |
| Washburn-Crosby Co's Rye Middlings ----- | 7018 | 3.0 | 14.0 | 6.0 | Rye middlings |
| Wheat Bran with Ground Screenings not Exceeding Mill Run ----- | 7229 | 4.0 | 13.0 | 13.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Wheat Standard Middlings with Ground Screenings not Exceeding Mill Run ----- | 7230 | 4.0 | 14.0 | 11.0 | Wheat middlings, ground wheat screenings not exceeding mill run |
| Wheat Mixed Feed with Ground Screenings not Exceeding Mill Run ----- | 7231 | 4.0 | 14.0 | 10.0 | Wheat bran, middlings, ground wheat screenings not exceeding mill run |
| Wheat Flour Middlings with Ground Screenings not Exceeding Mill Run ----- | 7232 | 4.0 | 15.0 | 8.0 | Wheat middlings, reddog flour, ground wheat screenings not exceeding mill run |
| Red Dog Flour (Adrian) ----- | 7233 | 4.0 | 16.0 | 4.0 | Low grade wheat flour containing the finer particles of wheat bran |
| Corn Feed Meal ----- | 9356 | 5.0 | 8.0 | 10.0 | Corn feed meal |
| Waterloo Mills, Waterloo, Ind. | | | | | |
| Buckwheat Mixed Feed ----- | 1955 | 4.0 | 15.0 | 20.0 | Buckwheat hulls, middlings |
| Watson, Giff. L., Redkey, Ind. | | | | | |
| Mix Feed ----- | 7319 | 3.5 | 8.0 | 10.5 | Corn, oats, rye |
| Chop Feed ----- | 8187 | 3.5 | 9.0 | 8.0 | Corn, oats |
| Weber Milling Company, Brookville, Ind. | | | | | |
| Mixed Feed ----- | 7890 | 3.0 | 14.0 | 10.0 | Wheat bran, middlings, corn bran, ground wheat screenings |
| Wellington Milling Company, Anderson, Ind. | | | | | |
| Wellington's A. X. A. Bran ----- | 4986 | 3.0 | 15.7 | 11.0 | Wheat bran |
| Wellington's A. X. A. Middlings ----- | 4987 | 4.0 | 15.0 | 6.0 | Wheat middlings |
| Wellington A. X. A. Mixed Bran ----- | 6225 | 3.0 | 14.0 | 11.0 | Wheat bran, corn bran |
| Wellington Milling & Elevator Company, Wellington, Kansas | | | | | |
| Bran ----- | 3257 | 3.0 | 13.0 | 12.0 | Wheat bran |
| Shorts ----- | 3258 | 4.0 | 15.0 | 8.0 | Wheat shorts |
| Wells, Guy M., Knox, Ind. | | | | | |
| Wells' Chop Feed ----- | 6065 | 3.2 | 8.3 | 9.0 | Corn, oats, corn feed meal |
| Wells-Abbott-Nieman Company, Schuyler, Neb. | | | | | |
| Wheat Bran ----- | 6941 | 3.5 | 14.0 | 10.0 | Wheat bran |
| Wheat Shorts ----- | 6942 | 4.0 | 15.0 | 6.5 | Wheat shorts |
| Wheat Middlings ----- | 6943 | 3.5 | 15.0 | 5.5 | Wheat middlings |
| Wells Flour Milling Company, Wells, Minn. | | | | | |
| Feedwell Germ Middlings ----- | 3244 | 8.0 | 20.2 | 3.0 | Wheat middlings |
| Feedwell Flour Middlings ----- | 4731 | 5.5 | 17.0 | 5.0 | Wheat middlings |
| Feedwell Bran with Ground Screenings ----- | 8322 | 3.0 | 13.3 | 11.2 | Wheat bran, ground wheat screenings not exceeding mill run |
| Feedwell Standard Middlings ----- | 8323 | 5.2 | 15.0 | 7.0 | Wheat middlings |
| Western Flour Mill Company, Davenport, Iowa | | | | | |
| Black Hawk Bran with Ground Screenings not to Exceed Mill Run ----- | 7895 | 3.0 | 13.3 | 11.2 | Wheat bran, ground wheat screenings |
| Black Hawk Standard Middlings ----- | 7896 | 5.2 | 15.0 | 7.0 | Wheat middlings |
| Black Hawk Germ Middlings ----- | 7897 | 10.0 | 25.0 | 3.5 | Wheat middlings |
| Black Hawk Flour Middlings ----- | 7898 | 3.5 | 15.5 | 4.5 | Wheat middlings |
| Western Grain Company, Kansas City, Mo. | | | | | |
| Wheat Bran & Screenings ----- | 7000 | 3.5 | 14.0 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Wheatland Milling Company, Wheatland, Ind. Mixed Feed ----- | 8564 | 3.0 | 10.0 | 10.0 | Wheat bran, shorts, corn bran, ground wheat screenings, mill sweepings |
| Whelan, Omer G., Richmond, Ind. Wheat Bran and Screenings ----- | 7155 | 5.0 | 11.9 | 12.0 | Wheat bran, ground wheat screenings not exceeding mill run |
| Corn Feed Meal ----- | 7709 | 2.5 | 7.5 | 5.0 | Corn feed meal |
| Whitlock Mill Company, Petersburg, Ind. Mixed Feed ----- | 8465 | 3.0 | 13.0 | 11.5 | Wheat bran, middlings, corn bran, corn feed meal, ground wheat screenings |
| Wiedner & Speck, Pendleton, Ind. ³³ Chop Feed ----- | 6398 | 3.5 | 9.0 | 9.0 | Corn, oats |
| Wiegman & Zelt, Fort Wayne, Ind. ³⁴ Chop Feed ----- | 5179 | 3.2 | 8.0 | 10.0 | Corn, oats, corn feed meal |
| Wildcat Roller Mills, Cutler, Ind. Wheat Shorts ----- | 1091 | 4.0 | 14.0 | 8.0 | Wheat shorts |
| Wheat Bran ----- | 3208 | 3.3 | 14.0 | 10.0 | Wheat bran |
| Wilkinson & Company, T. B., Knightstown, Ind. Middlings ----- | 119 | 3.5 | 14.0 | 7.0 | Wheat middlings |
| Bran ----- | 120 | 3.2 | 12.0 | 10.0 | Wheat bran |
| Chop Feed ----- | 3456 | 3.3 | 8.5 | 10.0 | Corn, oats |
| Mixed Mill Feed ----- | 4518 | 2.5 | 12.0 | 8.0 | Wheat bran, middlings, corn bran |
| Williams Milling Company, Williams, Ind. Williams Milling Co's Mixed Feed ----- | 135 | 3.9 | 13.0 | 9.0 | Wheat bran, middlings, ground wheat screenings, corn bran |
| Williamson Milling Company, The, Clay Center, Kansas Wheat Shorts ----- | 4487 | 4.0 | 17.0 | 5.0 | Wheat shorts |
| Wheat Bran ----- | 4655 | 3.5 | 15.5 | 10.0 | Wheat bran |
| White Middlings ----- | 4656 | 4.5 | 15.0 | 6.0 | Wheat middlings |
| Wilmot Flouring Mill, Wilmot, Ind. Shorts ----- | 4226 | 3.0 | 12.0 | 8.0 | Wheat shorts |
| Wheat Bran ----- | 6432 | 3.0 | 13.0 | 10.0 | Wheat bran |
| Wiltrout, Francis M., Corunna, Ind. Mixed Feed ----- | 5847 | 3.5 | 9.0 | 8.0 | Corn, oats |
| Winslow Milling Company, Winslow, Ind. Pikes Mixed Feed ----- | 9098 | 3.0 | 12.5 | 12.1 | Wheat bran, middlings, corn bran, ground wheat screenings, wheat scourings |
| Pikes "A" Mixed Feed ----- | 9099 | 3.0 | 13.0 | 11.0 | Wheat bran, middlings, corn bran, corn feed meal, ground wheat screenings, ground wheat scourings |
| Pikes Corn and Oats Feed ----- | 9100 | 3.5 | 9.0 | 8.0 | Corn, oats |
| Witmer Grain Company, Grabill, Ind. Wheat Middlings ----- | 1679 | 4.0 | 14.0 | 7.0 | Wheat middlings |
| Wheat Bran ----- | 2940 | 3.5 | 14.0 | 10.0 | Wheat bran |
| Wolff & Company, Lee, Lakeville, Ind. Corn and Oats Chop ----- | 9252 | 3.5 | 9.0 | 8.0 | Corn, oats |
| Woodbury-Elliott Grain Company, Muncie, Ind. Chop Feed ----- | 4118 | 3.0 | 9.0 | 8.0 | Corn, oats, corn feed meal |
| Woolard, C., Hagerstown, R. R. 20, Ind. Wheat Middlings ----- | 6746 | 2.5 | 14.0 | 6.0 | Wheat middlings |
| Mixed Feed ----- | 6747 | 2.5 | 13.5 | 11.0 | Wheat bran, corn bran, ground wheat screenings |

³³ Succeeded by Baker & Hodges³⁴ Succeeded by Zelt Bros.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Wright, John H., Clinton, Ind. | | | | | | |
| Wheat Middlings ----- | 7077 | 3.5 | 15.5 | 7.0 | Wheat middlings | |
| Venus Bran & Screenings ----- | 7250 | 3.5 | 14.0 | 10.0 | Wheat bran, corn bran, unground wheat screenings not to exceed mill run | |
| Wright Milling Company, Paris Crossing, Ind. | | | | | | |
| "A" Mixed Feed ----- | 2508 | 3.8 | 14.0 | 10.0 | Wheat bran, middlings, ground wheat screenings | |
| Corn Bran ----- | 2849 | 4.0 | 7.0 | 11.0 | Corn bran | |
| Corn Feed Meal ----- | 6235 | 2.0 | 7.0 | 5.0 | Corn feed meal | |
| Yaw Bros., Terre Haute, Ind.. | | | | | | |
| Corn Bran ----- | 6450 | 4.8 | 8.0 | 13.0 | Corn bran | |
| Yerxa, Andrews & Thurston, Inc., Minneapolis, Minn. | | | | | | |
| Flour Middlings ----- | 6515 | 5.5 | 15.5 | 6.5 | Wheat middlings | |
| Bran ----- | 6516 | 5.5 | 12.0 | 13.0 | Wheat bran | |
| Nokomos Durum Wheat Middlings ----- | 6955 | 5.5 | 14.5 | 10.5 | Wheat middlings | |
| Hector Durum Wheat Red Dog ----- | 6956 | 5.0 | 18.0 | 3.0 | Wheat reddog flour | |
| Golden Durum Wheat Mixed Feed ----- | 6957 | 5.5 | 15.5 | 8.5 | Pure durum wheat bran, pure durum wheat reddog flour | |
| Yoder, Marion J., Middlebury, Ind. | | | | | | |
| Wheat Middlings and Ground Wheat Screenings ----- | 8783 | 3.7 | 14.0 | 7.0 | Wheat middlings, ground wheat screenings not exceeding mill run | |
| Wheat Bran & Ground Wheat Screenings ----- | 8784 | 3.7 | 14.0 | 10.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Yohn, W. B., North Webster, Ind. | | | | | | |
| Wheat Bran ----- | 6836 | 3.5 | 13.5 | 10.0 | Wheat bran | |
| Wheat Middlings ----- | 6837 | 3.5 | 13.5 | 7.0 | Wheat middlings | |
| Yorktown Lumber Company, Yorktown, Ind. | | | | | | |
| Corn Bran ----- | 6630 | 3.0 | 9.0 | 11.0 | Corn bran | |
| Yost, W. H., South Bend, Ind. | | | | | | |
| Chop Feed ----- | 2927 | 3.5 | 9.0 | 8.0 | Corn, oats | |
| Youngs Creek Milling Company, Youngs Creek, Ind. | | | | | | |
| Youngs Creek Mixed Feed ----- | 7127 | 2.5 | 12.5 | 10.0 | Wheat bran, middlings, ground wheat screenings | |
| Zabel & Son, New Albany, Ind. | | | | | | |
| Wheat Middlings ----- | 9041 | 2.5 | 14.0 | 6.5 | Wheat middlings | |
| Zabel & Son's Mixed Feed ----- | 9042 | 3.0 | 13.5 | 11.0 | Wheat bran, ground wheat screenings not exceeding mill run | |
| Zehner, J. A., Plymouth, Ind. | | | | | | |
| Wheat Middlings ----- | 6449 | 3.0 | 13.0 | 7.0 | Wheat middlings | |
| Zehner Milling Company, Plymouth, Ind. ³⁵ | | | | | | |
| Wheat Middlings ----- | 1429 | 4.0 | 14.0 | 7.0 | Wheat middlings | |
| Corn & Oats Chop ----- | 1430 | 3.9 | 9.5 | 6.0 | Corn, oats | |
| Wheat Bran ----- | 1431 | 3.8 | 14.0 | 10.0 | Wheat bran | |
| Corn Bran ----- | 4205 | 2.5 | 6.0 | 15.0 | Corn bran | |
| Zelt Brothers, Fort Wayne, Ind. | | | | | | |
| Chop Feed ----- | 9183 | 3.2 | 8.0 | 10.0 | Corn, oats | |
| Zenith Milling Company, Kansas City, Mo. | | | | | | |
| Wheat Shorts ----- | 7372 | 3.5 | 16.0 | 9.0 | Wheat shorts | |
| Wheat Bran & Screenings not Exceeding Mill Run ----- | 7373 | 3.2 | 15.0 | 13.5 | Wheat bran, whole wheat screenings not exceeding mill run | |
| Ziliak & Schafer Milling Company, Haubstadt, Ind. | | | | | | |
| Ziliak's Mixed Feed ----- | 276 | 3.7 | 14.0 | 10.0 | Wheat bran, shorts, middlings, crushed wheat screenings | |
| Middlings ----- | 4059 | 3.5 | 14.5 | 9.0 | Wheat middlings | |

³⁵ Succeeded by Plymouth Roller Flour Mills

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Ziliak & Schafer Milling Company, Haubstadt, Ind. | | | | | | |
| Corn Feed Meal ----- | 6857 | 2.5 | 7.5 | 5.0 | | Corn feed meal |
| Wheat Shorts and Ground Screenings ----- | 7215 | 4.5 | 16.5 | 10.0 | | Wheat shorts, ground wheat screenings |
| Wheat Shorts, Screening, Corn Bran and Feed Meal ----- | 8291 | 4.5 | 16.5 | 10.0 | | Wheat shorts, ground wheat screenings, corn bran, corn feed meal |
| Z. & S. M. Mixed Feed ----- | 8292 | 3.7 | 14.0 | 10.0 | | Wheat bran, shorts, corn bran, corn feed meal, ground wheat screenings |
| Wheat Bran & Screenings ----- | 8597 | 4.0 | 14.0 | 10.0 | | Wheat bran, ground wheat screenings |
| Zionsville Milling Company, Zionsville, Ind. | | | | | | |
| Wheat Shorts ----- | 4298 | 3.0 | 14.0 | 7.0 | | Wheat shorts |
| Mixed Feed ----- | 4783 | 3.0 | 13.0 | 12.0 | | Wheat bran, middlings, ground wheat screenings, corn bran |
| Zook Bros., Logansport, Ind. | | | | | | |
| Chop Feed ----- | 4358 | 3.5 | 9.0 | 9.5 | | Corn, oats |
| MISCELLANEOUS CHOP FEED, CONTAINING CORN AND COB MEAL (CRUSHED EAR CORN) | | | | | | |
| Daily, C. C., Bristol, R. R. 5, Ind. | | | | | | |
| Bonneyville No. 2 Chop Feed ----- | 5502 | 2.5 | 7.3 | 14.0 | | Corn and cob meal (crushed ear corn) oats, corn bran |
| Loogootee Milling Company, The, Loogootee, Ind. | | | | | | |
| Standard Mixed Feed ----- | 3146 | 3.5 | 10.0 | 19.0 | | Wheat bran, corn bran, ground wheat screenings, oats, corn and cob meal (crushed ear corn) |
| Millersville Feed Mill, Millersville, Ind. | | | | | | |
| Chop Feed ----- | 3823 | 2.5 | 8.0 | 10.0 | | Corn and cob meal (ground ear corn) oats, corn bran, corn feed meal |
| Milner & Sons, Darlington, Ind. | | | | | | |
| Chopped Feed ----- | 3231 | 3.0 | 9.0 | 10.0 | | Corn and cob meal (ear corn) oats, rye, corn bran |
| Ogle-Cook Grain Company, Hamlet, Ind. | | | | | | |
| Economy Feed ----- | 8557 | 3.5 | 8.0 | 18.0 | | Corn and cob meal (crushed ear corn) oats |
| O. K. Livery & Feed Company, South Bend, Ind. | | | | | | |
| Chop Feed ----- | 5670 | 2.8 | 8.5 | 10.0 | | Corn and cob meal (ground ear corn) oats |
| Pancost Milling Company, Elkhart, Ind. | | | | | | |
| Economy Chop Feed ----- | 9019 | 3.0 | 8.0 | 20.0 | | Oats, corn and cob meal (crushed ear corn) wheat middlings, wheat bran, corn feed meal |
| Reeve & Son, G. E., Washington, Ind. | | | | | | |
| Mill Chop Feed ----- | 8493 | 3.0 | 9.0 | 10.0 | | Wheat bran, corn bran, corn and cob meal (crushed ear corn) |
| Ruoff, Geo. D., Osgood, Ind. | | | | | | |
| Mixed Feed ----- | 2870 | 3.5 | 9.5 | 10.0 | | Corn and cob meal (ground ear corn) wheat bran |
| Sheward & Company, B. F., Rochester, Ind. | | | | | | |
| Sheward's Chop Feed ----- | 8312 | 2.5 | 7.5 | 8.0 | | Corn and cob meal (crushed ear corn) oats |
| Walker & Company, Peter M., Loogootee, Ind. | | | | | | |
| Mixed Feed ----- | 3136 | 3.5 | 10.0 | 10.0 | | Wheat bran, middlings, corn bran, corn and cob meal, oats |
| Zook Bros., Logansport, Ind. | | | | | | |
| No. 2 Chop Feed ----- | 4993 | 2.8 | 7.0 | 13.0 | | Corn and cob meal (crushed ear corn) oats, corn bran, corn feed meal |
| MISCELLANEOUS CHOP FEED CONTAINING COB MEAL, OAT HULLS, WHEAT SCREENINGS OR OTHER FILLER | | | | | | |
| Acme-Evans Company, Indianapolis, Ind. | | | | | | |
| E-Z Chop Feed ----- | 5635 | 3.3 | 8.4 | 11.0 | | Corn, oats, oat hulls, salt |
| Acme C. O. & B. Chop ----- | 6200 | 4.0 | 8.0 | 7.0 | | Corn, oats, barley, oat hulls |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Acme Grain Company, North Manchester, Ind. Chop Feed ----- | 3556 | 3.9 | 9.5 | 6.0 | Corn, oats, ground wheat screenings |
| Akron Milling Company, The, Akron, Ind. Mixed Chop Feed ----- | 7510 | 2.5 | 8.0 | 8.0 | Corn, oats, rye, corn bran, ground wheat screenings, mill sweepings |
| Amo Mill & Elevator Company, Bargersville, Ind. Chop Feed ----- | 8381 | 3.0 | 9.0 | 15.0 | Corn, oats, whole and shrivelled wheat, weed seeds, cob meal, chaff, whole wheat screenings |
| Ashbrook Company, The J. S., Mattoon, Ill. Egyptian Mixed Feed ----- | 8057 | 2.0 | 8.0 | 12.0 | Corn, oats, oat middlings, oat shorts, oat hulls |
| Badenoch Company, J. J., Chicago, Ill. Badenoch's C. & O. Chop ----- | 8762 | 3.0 | 8.0 | 12.0 | Hominy feed, corn feed meal, oat middlings, oat shorts, oat hulls, salt |
| Belt Elevator & Feed Company, Indianapolis, Ind. "A" Chop Feed ----- | 3978 | 3.0 | 7.5 | 16.0 | Corn, oat bran, oat middlings, oat hulls, corn feed meal |
| Brown, W. W., Goshen, Ind. Favorite Feed ----- | 2596 | 3.5 | 8.0 | 18.0 | Corn, oats, cob meal |
| Canal Elevator Company, Peru, Ind. Chop Feed ----- | 886 | 3.2 | 8.8 | 9.0 | Corn, oats, ground corn screenings |
| City Mills, South Whitley, Ind. Scrap Feed ----- | 8027 | 2.5 | 8.0 | 9.5 | Corn, oats, corn bran, corn feed meal, ground wheat screenings, mill sweepings |
| Clinton Grain Company, Frankfort, Ind. Chop Feed ----- | 9061 | 2.5 | 8.5 | 10.0 | Corn, oats, corn feed meal, ground screenings from wheat, corn, rye and oats |
| Colfax Grain Company, Colfax, Ind. Chop Feed ----- | 3408 | 2.0 | 7.0 | 15.0 | Corn, oats, ground screenings from wheat, corn and oats |
| Daugherty, S. P., Edwardsburg, Mich. S. P. Daugherty's Chop Feed ----- | 6492 | 3.3 | 8.7 | 10.0 | Corn, oats, cob meal |
| Dickinson Company, The Albert, Chicago, Ill. Rival Chop Feed ----- | 8132 | 3.0 | 9.0 | 13.0 | Corn, oat shorts, oat hulls |
| Fairplay Feed Mills, Linton, Ind. Winner Chop ----- | 7714 | 3.0 | 7.0 | 12.0 | Corn, oats, corn feed meal, oat shorts, oat groats, oat hulls, salt |
| Farmland City Flour Mills, Farmland, Ind. Chop Feed ----- | 3703 | 2.0 | 7.0 | 11.0 | Wheat bran, corn, oats, oat bran, oat middlings, oat hulls, corn feed meal |
| Friedrich & Son, C. W., Dyer, Ind. Friedrich's Chop Feed ----- | 2714 | 3.0 | 9.0 | 13.0 | Corn, oats, cob meal |
| Goodrich Bros. Hay & Grain Company, Winchester, Ind. "Climax Chop" ----- | 6010 | 3.5 | 9.5 | 6.0 | Wheat, corn, oats, rye, corn feed meal, ground screenings from wheat, corn, oats and rye |
| Hamlet Grain Company, The, Hamlet, Ind. Chop Feed ----- | 7914 | 3.5 | 9.0 | 9.5 | Corn, oats, ground screenings from wheat and corn |
| Hammel Milling Company, Fremont, Ind. Chop Feed ----- | 4048 | 2.5 | 9.0 | 9.0 | Corn, oats, whole wheat screenings, corn feed meal |
| Hutchinson Flour Mills Company, Hutchinson, Kansas Hutchinson Chop Feed ----- | 7837 | 3.5 | 9.0 | 4.0 | Corn, whole wheat screenings |
| International Sugar Feed Company, Minneapolis, Minn. International Chop Feed ----- | 7185 | 4.0 | 10.5 | 16.0 | Corn, barley, ground screenings from wheat, oats, barley and flax, oat middlings, oat shorts, oat hulls |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Killian Elevator, The, Newberry, Ind. Chop Feed ----- | 8140 | 2.8 | 8.7 | 8.0 | Corn, oats, corn bran, corn feed meal, ground wheat screenings | |
| Klondike Milling Company, Danville, Ind. Cracked Corn & Screenings ----- | 4999 | 2.5 | 7.5 | 7.0 | Corn, whole wheat screenings | |
| Lash Flour Mills, Fred B., Farmersburg, Ind. Chop Feed ----- | 1780 | 3.5 | 11.0 | 5.0 | Corn, oats, ground wheat screenings | |
| Lewis Milling Company, Lewis, Ind. Chop Feed ----- | 7023 | 3.5 | 11.0 | 5.0 | Corn, oats, ground wheat screenings | |
| Maegerlein, E. S., Patricksburg, Ind. Chop Feed ----- | 8102 | 3.2 | 9.0 | 7.0 | Corn, oats, ground wheat screenings | |
| Maegerlein Roller Mills, Arthur, Clay City, Ind. Chop Feed ----- | 3809 | 3.2 | 9.0 | 9.0 | Corn, oats, ground wheat screenings | |
| McMillen & Son, J. W., Fort Wayne, Ind. ³⁶ Eagle Brand Chop Feed ----- | 8138 | 2.5 | 7.5 | 8.0 | Oats, corn feed meal, corn screenings | |
| Noragon & Sons, Butler, Ind. Chop Feed ----- | 6275 | 2.8 | 8.5 | 7.0 | Corn, oats, ground wheat screenings, corn feed meal | |
| Pendleton Feed & Fuel Company, Pendleton, Ind. Chop Feed ----- | 1477 | 3.0 | 10.0 | 6.0 | Corn, oats, wheat screenings | |
| Prairie State Milling Company, Chicago, Ill. Prairie State Chop Feed ----- | 7727 | 2.5 | 8.0 | 11.0 | Corn, oats, barley, corn feed meal, ground barley screenings, ground oat hulls | |
| Prater-Mottier Company, Terre Haute, Ind. Praters Chop Feed ----- | 7585 | 3.0 | 10.0 | 15.0 | Corn, oats, wheat bran, corn feed meal, alfalfa meal, ground wheat screenings | |
| Probst & Kassebaum, Indianapolis, Ind. Special C. O. & B. Chop ----- | 8444 | 4.0 | 8.0 | 7.0 | Corn, oats, barley, oat hulls | |
| Sage, L. L., Adamsville, Mich. L. L. Sages Chop Feed ----- | 4620 | 3.4 | 9.0 | 12.0 | Corn, oats, cob meal | |
| Smock & Caca, Noblesville, Ind. Mixed Feed ----- | 2533 | 3.7 | 9.2 | 8.0 | Corn, oats, corn bran, cob meal | |
| Walker, H. L., Montpelier, Ind. Chop Feed ----- | 8130 | 3.5 | 8.0 | 9.0 | Corn, oats, ground wheat screenings | |
| CHOP FEEDS CONTAINING CORN BRAN | | | | | | |
| Akron Milling Company, The, Akron, Ind. Akron Chop ----- | 2794 | 3.5 | 9.0 | 8.0 | Corn, oats, corn bran, whole wheat screenings | |
| Albion Roller Mills, Albion, Ind. Chop Feed ----- | 8609 | 3.5 | 9.0 | 8.0 | Corn, oats, corn bran, wheat bran, ground wheat screenings not exceeding mill run | |
| Anderson Bros., Huntington, Ind. Chop Feed ----- | 5450 | 3.0 | 8.0 | 12.0 | Corn, oats, corn feed meal, corn bran | |
| Angola Flouring Mills, Angola, Ind. Chop Feed ----- | 7241 | 3.0 | 9.0 | 8.0 | Corn, oats, rye, corn bran, corn feed meal | |
| Ashley-Hudson Milling & Grain Company, Ashley, Ind. ³⁷ Ashley-Hudson Chop Feed ----- | 3783 | 3.5 | 9.5 | 8.0 | Corn, oats, corn bran | |

³⁶ Succeeded by The McMillen Co.³⁷ Succeeded by Kirlin & Hammond

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Bainbridge Mill & Elevator Company, Bainbridge, Ind. Chop Feed ----- | 6820 | 3.4 | 8.3 | 11.0 | | Corn, oats, corn bran, corn feed meal |
| Berlein Mills, Angola, R. R. 2, Ind. Chop Feed ----- | 8096 | 2.8 | 8.7 | 9.0 | | Corn, oats, rye, corn bran, corn feed meal |
| Besser, W. T., Greencastle, Ind. Besser's Chop Feed ----- | 322 | 4.1 | 10.3 | 7.7 | | Corn, oats, corn bran |
| Bicknell Mill Company, Bicknell, Ind. Chop Feed ----- | 7823 | 3.5 | 9.0 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Blackmore, D. M., Greensburg, Ind. Blackmore's Chop Feed ----- | 3787 | 3.5 | 9.0 | 7.5 | | Corn, oats, corn bran, corn feed meal |
| Blackwell, R. A., Hamlet, Ind. Chop Feed ----- | 6607 | 2.8 | 8.7 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Bluffton Milling Company, Bluffton, Ind. Chop Feed ----- | 3397 | 3.0 | 9.0 | 8.0 | | Corn, oats, rye, corn bran, corn feed meal |
| Boldt & Son, Waynetown, Ind. Chop Feed ----- | 7926 | 2.8 | 8.7 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Bristol Milling Company, Bristol, Ind. "Chop Feed" ----- | 7417 | 3.0 | 9.0 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| Broad Ripple Flour & Feed Mills, Indianapolis, Ind. Chop Feed ----- | 8065 | 2.8 | 8.7 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Brooks & Son, L., Vincennes, Ind. ³⁸ New Chop Feed ----- | 4407 | 4.0 | 9.0 | 7.5 | | Corn, oats, corn bran, corn feed meal |
| Burge-Thomas Milling Company, Marion, Ind. ³⁹ Chop Feed ----- | 7341 | 3.0 | 9.0 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Burrell & Morgan, Elkhart, Ind. Burrell & Morgan's Chop Feed ----- | 5835 | 3.0 | 8.0 | 10.0 | | Corn, oats, corn bran, corn feed meal |
| Butler Milling Company, Butler, Ind. Chop Feed ----- | 6940 | 3.0 | 8.7 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| City Feed Store, Plymouth, Ind. Plymouth Chop Feed ----- | 7542 | 3.0 | 8.7 | 7.0 | | Corn, oats, rye, corn bran, corn feed meal |
| City Milling Company, Kendallville, Ind. Chop Feed ----- | 7339 | 3.0 | 8.7 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| Clayton Milling Company, Clayton, Ind. Chop Feed ----- | 7663 | 3.0 | 9.0 | 9.0 | | Corn, oats, corn bran, corn feed meal |
| Clover Leaf Flour Mills, Kokomo, Ind. Clover Leaf Chop Feed ----- | 4448 | 3.0 | 7.9 | 11.0 | | Corn, oats, corn bran, corn feed meal, ground wheat screenings |
| Collamer Milling Company, Collamer, Ind. Chop Feed ----- | 7057 | 3.0 | 9.0 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| Coppes Bros. & Zook, Nappanee, Ind. Chop Feed ----- | 0009 | 3.0 | 8.0 | 9.0 | | Corn, oats, corn bran, corn feed meal |
| Coppock, Cyrus L., Jonesboro, Ind. ⁴⁰ Coppock's Chop Feed ----- | 6086 | 3.0 | 9.0 | 9.0 | | Corn, oats, wheat, rye, corn bran, corn feed meal |

³⁸ Succeeded by U. G. McCoy & Co.³⁹ Succeeded by Thomas Milling Co.⁴⁰ Succeeded by L. A. Shields

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Crawford, J. C., Gas City, Ind. Chop Feed ----- | 6826 | 3.0 | 9.0 | 10.0 | Corn, oats, rye, corn bran, corn feed meal | |
| Cretz & Deardoff, Centerville, Ind. Chop Feed ----- | 7703 | 3.3 | 9.0 | 12.0 | Corn, oats, corn bran | |
| Cronk & Cronk, Shirley, Ind. Chop Feed ----- | 5798 | 2.8 | 8.7 | 8.0 | Corn, oats, rye, corn bran, corn feed meal | |
| Darlington Feed Mill, Darlington, Ind. Chop Feed ----- | 6043 | 3.0 | 8.7 | 8.0 | Wheat, corn, oats, corn bran, corn feed meal | |
| De Armitt, James B., Huntington, Ind. Chop Feed ----- | 4535 | 3.0 | 9.0 | 10.0 | Corn, oats, corn bran, corn feed meal | |
| Delp Grain Company, E. E., Bourbon, Ind. Chop Feed ----- | 6550 | 3.0 | 9.0 | 7.0 | Corn, oats, corn bran, corn feed meal | |
| Dotson & Sons, Chas., Parker, Ind. Chop Feed ----- | 5063 | 2.8 | 8.7 | 7.0 | Corn, oats, rye, corn bran, corn feed meal | |
| Farmers Elevator Company, Kempton, Ind. Chop Feed ----- | 7639 | 2.8 | 8.0 | 12.0 | Corn, oats, corn bran, corn feed meal | |
| Farmers Grain & Milling Company, Union City, Ind. Chop Feed ----- | 8261 | 2.8 | 8.7 | 9.0 | Corn, oats, corn feed meal, corn bran, ground screenings from wheat and corn | |
| Farmers Milling & Elevator Company, Veedersburg, Ind. No. 1 Chop Feed ----- | 5597 | 3.5 | 9.0 | 8.0 | Corn, oats, corn bran, whole wheat screenings | |
| Finkle, Jacob, Warren, Ind. Chop Feed ----- | 7661 | 3.9 | 9.5 | 6.0 | Corn, oats, corn feed meal, corn bran | |
| Fornax Milling Company, Decatur, Ind. Fornax Chop Feed ----- | 8402 | 3.0 | 9.0 | 8.0 | Corn, oats, corn bran, corn feed meal | |
| French, Hubert, Linn Grove, Ind. French Chop Feed ----- | 5723 | 2.9 | 8.4 | 10.0 | Corn, oats, rye, corn bran, corn feed meal | |
| Perfecto Chop Feed ----- | 8441 | 3.5 | 9.0 | 6.0 | Corn, oats, corn bran, corn feed meal | |
| Furr & Cohee, Bunker Hill, Ind. Chop Feed ----- | 6408 | 3.0 | 8.5 | 9.0 | Corn, oats, corn feed meal, ground corn screenings, ground wheat screenings | |
| Fyke Milling Company, LaGrange, Ind. Fyke's Chop Feed ----- | 2134 | 3.5 | 9.5 | 10.0 | Corn, oats, corn bran | |
| Garrett & Funk, Liberty Center, Ind. Chop Feed ----- | 5122 | 2.7 | 8.5 | 14.0 | Corn, oats, corn bran | |
| Gas City Elevator Co., Gas City, Ind. Chop Feed ----- | 7998 | 3.0 | 9.0 | 9.0 | Corn, oats, corn bran, corn feed meal | |
| Gaston Roller Mill, Gaston, Ind. Chop Feed ----- | 5510 | 3.0 | 8.7 | 9.0 | Corn, oats, rye, corn bran, corn feed meal | |
| Geneva Milling & Grain Company, Geneva, Ind. Egley's Chop Feed ----- | 6740 | 2.8 | 8.7 | 8.0 | Corn, oats, corn bran, corn feed meal | |
| S. B. Gilman, Summitville, Ind. Gilman's Corn and Oats Chop ----- | 2444 | 3.5 | 9.0 | 6.0 | Corn, oats, corn bran | |
| Glen Echo Mills, Indianapolis, Ind. Three In One ----- | 5012 | 4.0 | 10.0 | 12.0 | Oats, wheat bran, wheat middlings, hominy feed, corn bran, corn feed meal | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Gnagy, G. L., Hamilton, Ind. Chop Feed ----- | 5434 | 2.8 | 8.5 | 9.0 | Corn, oats, rye, corn bran, corn feed meal |
| Graft, C. V., Winchester, Ind. Chop Feed ----- | 6456 | 3.5 | 8.5 | 8.0 | Corn, oats, corn bran, corn feed meal |
| Graft's Chop Feed ----- | 8166 | 3.5 | 8.5 | 8.0 | Corn, oats, corn feed meal, corn bran |
| Grant & Wyeth, Lebanon, Ind. Chop Feed ----- | 8862 | 3.0 | 9.0 | 9.0 | Corn, oats, corn bran, corn feed meal |
| Greenfield Milling Company, Greenfield, Ind. Chop Feed ----- | 5141 | 2.0 | 6.0 | 15.0 | Oats, corn bran |
| Harris Milling Company, Greencastle, Ind. Harris' Chop Feed ----- | 210 | 4.1 | 10.3 | 7.7 | Corn, oats, corn bran |
| Harting & Company, Elwood, Ind. Harting's Chop Feed ----- | 5253 | 3.5 | 9.0 | 6.0 | Corn, oats, rye, corn bran, corn feed meal |
| Heavilin & Company, Marion, Ind. ⁴¹ Chop Feed ----- | 7411 | 2.5 | 7.0 | 11.0 | Oats, corn and cob meal (crushed ear corn) corn bran, corn feed meal |
| Hollett-Winders Grain Company, The, Arcadia, Ind. Chop Feed ----- | 5780 | 3.0 | 9.0 | 8.0 | Corn, oats, corn bran, corn feed meal |
| Hollingsworth, S. P., Russiaville, Ind. Hollingsworth's Chop Feed ----- | 8661 | 3.9 | 9.0 | 9.0 | Corn, oats, corn bran, corn feed meal |
| Holser & Company, B. I., Walkerton, Ind. Chop ----- | 4122 | 3.5 | 9.0 | 9.5 | Corn, oats, corn bran |
| Hornung, J. M., Greensburg, Ind. Chop Feed ----- | 2576 | 4.8 | 10.0 | 11.0 | Corn, oats, corn bran |
| Huntington Mill Company, Huntington, Ind. "Chop Feed" ----- | 8586 | 2.7 | 8.5 | 9.0 | Corn, oats, corn bran, corn feed meal |
| Iroquois Roller Mills, Rensselaer, Ind. Chop Feed ----- | 5088 | 3.5 | 9.0 | 10.0 | Corn, oats, corn bran, corn feed meal |
| Mixed Chop Feed ----- | 6598 | 2.0 | 7.5 | 15.0 | Corn, corn bran, corn feed meal, oat middlings, oat shorts, oat hulls, ground wheat screenings |
| Jackson & Smith, Roanoke, Ind. Roanoke Chop Feed ----- | 5399 | 3.6 | 8.0 | 10.0 | Corn, oats, corn bran, corn feed meal |
| J Street Milling Company, LaPorte, Ind. Chop Feed ----- | 9254 | 2.8 | 8.7 | 9.0 | Corn, oats, corn bran, corn feed meal |
| Jenkins & Cohee, Whitestown, Ind. ⁴² Chop Feed ----- | 6880 | 3.0 | 8.7 | 10.0 | Corn, oats, corn bran, corn feed meal |
| Jones & Son, Charles N., Wabash, Ind. Chop Feed ----- | 5067 | 3.5 | 9.0 | 6.0 | Corn, oats, corn bran |
| "A" Chop Feed ----- | 5191 | 3.0 | 9.0 | 9.0 | Corn, oats, corn bran, corn feed meal |
| Jonesboro Milling Company, Jonesboro, Ind. Chop Feed ----- | 7999 | 2.8 | 8.7 | 7.0 | Corn, oats, corn bran, corn feed meal |
| Kiest Milling Company, Knox, Ind. Chop Feed ----- | 7970 | 3.0 | 9.0 | 6.0 | Corn, oats, corn bran, corn feed meal |
| Kingman Grain & Milling Company, Kingman, Ind. Victor Chop Feed ----- | 3010 | 3.2 | 9.0 | 9.0 | Corn, oats, ground wheat screenings, corn bran |

⁴¹ Succeeded by Heavilin Milling & Coal Co.⁴² Succeeded by Kern & Kirtley Grain Co.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Knecht Milling Company, Hartford City, Ind. Chop Feed ----- | 9018 | 2.0 | 8.0 | 10.0 | Corn, oats, corn bran, corn feed meal | |
| Kuhn & Son, J. H., Michigan City, Ind. A. Chop Feed ----- | 8488 | 3.5 | 8.5 | 10.0 | Oats, corn bran, corn feed meal | |
| LaPorte Milling Company, LaPorte, Ind. Chop Feed ----- | 6587 | 3.0 | 9.0 | 7.0 | Corn, oats, corn bran, corn feed meal | |
| Leach & Company, E. R., Sullivan, Ind. Chop Feed ----- | 1155 | 4.3 | 10.3 | 5.8 | Corn, oats, wheat bran, corn bran | |
| Lefforge, Otto, Rossville, Ind. Chop Feed ----- | 7932 | 3.0 | 8.0 | 10.0 | Corn, oats, corn bran, corn feed meal | |
| Lemon Milling Company, The, Bedford, Ind. Chop Feed ----- | 6804 | 3.0 | 8.5 | 9.0 | Corn, oats, corn bran, corn feed meal, ground corn screenings | |
| Little Crow Milling Company, Warsaw, Ind. Little Crow Mixed Chop Feed ----- | 5454 | 3.0 | 9.0 | 9.0 | Corn, oats, corn bran, corn feed meal | |
| Majot & Morgan, Michigan City, R. R. 1, Ind. Chop Feed ----- | 8039 | 2.8 | 8.5 | 9.0 | Corn, oats, corn bran, corn feed meal | |
| Martin, John D., Lafayette, Ind. Duree Chop Feed ----- | 3889 | 3.5 | 9.5 | 8.0 | Corn, oats, corn bran | |
| Matthews Roller Mills, Matthews, Ind. Chop Feed ----- | 3513 | 3.0 | 9.0 | 8.0 | Corn, oats, corn bran | |
| Moore's Chop Feed ----- | 6650 | 2.8 | 8.7 | 7.0 | Corn, oats, corn bran, corn feed meal | |
| Maumee Valley Mills, New Haven, Ind. Chop Feed ----- | 4382 | 3.5 | 9.0 | 6.0 | Corn, oats, corn bran, corn feed meal | |
| Mexico Roller Mills, Mexico, Ind. Chop Feed No. 1 ----- | 5052 | 3.2 | 8.5 | 9.0 | Corn, oats, wheat bran, corn bran, corn feed meal, ground wheat screenings | |
| Middlebury Milling Company, Middlebury, Ind. Chop Feed ----- | 5437 | 3.0 | 9.0 | 9.0 | Corn, oats, corn bran, corn feed meal | |
| Milford Grain & Milling Company, Milford, Ind. Chop Feed ----- | 6628 | 2.8 | 8.7 | 8.0 | Corn, oats, corn bran, corn feed meal, ground corn screenings | |
| Monroe Grain, Hay & Milling Company, Monroe, Ind. Chop Feed ----- | 3406 | 3.0 | 8.0 | 9.0 | Corn, oats, corn bran, corn feed meal | |
| Morgan, Rees J., Mexico, Ind. Chop Feed ----- | 8213 | 3.0 | 9.0 | 8.0 | Corn, oats, corn bran | |
| Mulberry Coal & Feed Company, Mulberry, Ind. Mulberry Chop Feed ----- | 5985 | 3.5 | 9.0 | 7.0 | Corn, oats, corn bran | |
| Myers & Son, Joseph H., Chili, Ind. ⁴³ Myers' Chop Feed ----- | 6600 | 3.0 | 9.0 | 8.0 | Corn, oats, wheat, rye, corn bran, corn feed meal, ground wheat screenings | |
| McCormick & Son, Chas. W., Logansport, Ind. A. Chop Feed ----- | 4060 | 3.5 | 9.0 | 10.0 | Corn, oats, corn bran, corn feed meal | |
| McCoy Elevator, R. A., Greensburg, Ind. Chop Feed ----- | 8466 | 3.5 | 9.0 | 7.5 | Corn, oats, corn bran, corn feed meal | |
| Naber & Company, Chas. F., Alexandria, Ind. Nabers Chop ----- | 7196 | 2.5 | 8.0 | 7.0 | Corn, oats, corn bran, corn feed meal | |

⁴³ Succeeded by J. L. & J. M. Myers

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| National Mills, Angola, Ind. Chop Feed ----- | 7305 | 2.8 | 8.7 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Nichols & Company, C. E., Lowell, Ind. Ground Feed ----- | 5398 | 3.5 | 9.0 | 9.0 | | Corn, oats, corn bran, corn feed meal, corn flour |
| Niezer & Company, Fort Wayne, Ind. Niezer's Chop Feed ----- | 6269 | 2.8 | 8.7 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| Nodine, W. J., Waterloo, Ind. Nodine's Chop ----- | 7723 | 2.4 | 8.3 | 12.0 | | Corn, oats, corn bran, corn feed meal, mill sweepings |
| Norwood & Smithson, Lebanon, Ind. ⁴⁴ Chop Feed ----- | 6923 | 3.0 | 8.5 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| Oxford Feed Mill, Oxford, Ind. Deed's "Chop Feed" ----- | 4990 | 3.0 | 9.0 | 9.0 | | Corn, oats, corn bran, corn feed meal |
| Pancost Milling Company, Elkhart, Ind. "Pancost's" Chop Feed ----- | 7400 | 3.0 | 8.0 | 12.0 | | Corn, oats, rye, wheat, corn bran, corn feed meal |
| Pearson, W. W., Upland, Ind. Chop Feed ----- | 5952 | 2.5 | 8.0 | 9.0 | | Corn, oats, rye, corn bran, corn feed meal |
| Pennville Milling Company, Pennville, Ind. Chop Feed ----- | 3546 | 3.0 | 9.0 | 9.0 | | Corn, oats, corn bran |
| Phillips, J. C., Star City, Ind. Chop Feed ----- | 7597 | 2.8 | 8.7 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Porter, Robert, Cicero, Ind. Chop Feed ----- | 6882 | 3.0 | 9.0 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Portland Equity Exchange, The, Portland, Ind. Equity Chop Feed ----- | 9240 | 2.8 | 8.7 | 9.0 | | Corn, oats, rye, corn bran, corn feed meal |
| Radeliff Flour & Feed Exchange, E. M., Pierceton, Ind. A. Chop Feed ----- | 7732 | 3.0 | 9.0 | 10.0 | | Corn, oats, rye, corn bran, corn feed meal |
| Ray & Rice, Camden, Ind. Chop Feed ----- | 2372 | 3.9 | 9.3 | 8.0 | | Corn, oats, corn bran |
| "A" Chop Feed ----- | 4762 | 3.5 | 9.0 | 10.0 | | Corn, oats, corn bran, corn feed meal |
| Rittenhouse, E. S., Liberty Mills, Ind. Liberty Bird Chop Feed ----- | 5545 | 2.5 | 7.5 | 10.0 | | Corn, oats, corn bran, corn feed meal |
| Riverside Milling Company, Wolcottville, Ind. Chop Feed ----- | 7846 | 3.0 | 8.5 | 9.0 | | Corn, oats, corn bran, corn feed meal |
| Rochester Roller Mills, Rochester, Ind. Chop Feed ----- | 5592 | 3.0 | 8.7 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Roper & Brown, Hobart, Ind. Hobart No. 1 Chop Feed ----- | 5994 | 3.0 | 9.0 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| Rouch, W. E., Mishawaka, Ind. Chop Feed ----- | 8225 | 3.5 | 9.0 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| Schaefer, Karl H., Indianapolis, Ind. Schaefer's Special Chop Feed ----- | 7190 | 3.0 | 8.0 | 10.0 | | Corn, oats, corn bran, corn feed meal |
| Schilt, W. F., Bremen, Ind. Chop ----- | 8989 | 3.9 | 9.5 | 6.0 | | Corn, oats, rye, wheat and corn bran |
| Scientific Milling Company, Marion, Ind. Scientific Chop Feed ----- | 8571 | 3.0 | 8.5 | 9.0 | | Corn, oats, corn bran, corn feed meal |

⁴⁴ Succeeded by G. W. Norwood

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Sheridan Milling Company, Sheridan, Ind. ⁴⁵ Chop Feed ----- | 5964 | 2.7 | 9.0 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Shirley & Jones, Lebanon, Ind. Chop Feed ----- | 8126 | 3.0 | 8.5 | 9.0 | | Corn, oats, corn bran, corn feed meal |
| Smith & Company, A., Sheridan, Ind. New Chop Feed ----- | 6264 | 3.0 | 8.8 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| Smith Company, C. E., Wabash, Ind. ⁴⁶ Smith's Chop Feed ----- | 5300 | 3.0 | 9.0 | 9.0 | | Corn, oats, corn bran, corn feed meal |
| Smock & Caca, Noblesville, Ind. Caca's Chop Feed ----- | 4483 | 3.5 | 9.0 | 9.0 | | Corn, oats, corn bran, corn feed meal, cob meal |
| South Side Cereal Mills, Fort Wayne, Ind. Wayne Chop Feed ----- | 6250 | 3.5 | 9.0 | 9.0 | | Corn, oats, corn bran, corn feed meal |
| South Side Feed Store, Peru, Ind. Chop Feed ----- | 7530 | 2.8 | 8.8 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| South Whitley Mills, South Whitley, Ind. Chop Feed ----- | 2141 | 3.5 | 9.0 | 11.0 | | Corn, oats, corn bran |
| Starr Mills, South Bend, Ind. Chop Feed ----- | 6002 | 3.0 | 9.0 | 7.0 | | Corn, oats, rye, wheat middlings, corn bran, corn feed meal |
| St. Joe Milling Company, St. Joe, Ind. Kosht's Chop Feed ----- | 5842 | 3.0 | 8.5 | 9.0 | | Corn, oats, corn bran, corn feed meal |
| Stone Quarry Mills, Spiceland, Ind. Chop Feed ----- | 3996 | 2.7 | 8.0 | 10.0 | | Corn, oats, corn bran, corn feed meal |
| Strauss & Son, J. W., North Manchester, Ind. Chop Feed ----- | 8084 | 3.0 | 8.5 | 10.0 | | Corn, oats, corn bran, corn feed meal |
| Studler Bros., Linn Grove, Ind. Chop Feed ----- | 2452 | 3.9 | 8.2 | 10.0 | | Corn, oats, corn bran |
| Sturgeon Grain & Coal Company, Muncie, Ind. Chop Feed ----- | 7223 | 3.5 | 8.8 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Swayzee Milling Company, Swayzee, Ind. Chop Feed ----- | 5208 | 3.0 | 9.0 | 9.0 | | Corn, oats, corn bran, corn feed meal |
| Swayzees Market, Marion, Ind. Swayzee's Chop Feed ----- | 5522 | 3.0 | 9.0 | 9.0 | | Corn, oats, corn bran, corn feed meal |
| Sweetser Grain Company, Sweetser, Ind. Chop Feed ----- | 6899 | 2.8 | 8.7 | 7.0 | | Corn, oats, corn bran, corn feed meal |
| Thomas Milling Company, Marion, Ind. Chop Feed ----- | 8452 | 3.0 | 9.0 | 8.0 | | Corn, oats, corn feed meal, corn bran |
| Special Chop ----- | 9137 | 2.8 | 8.7 | 9.0 | | Corn, oats, barley, corn bran, corn feed meal |
| Tresselt & Sons, C., Fort Wayne, Ind. Tresselt's Chop Feed ----- | 7209 | 3.5 | 9.0 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Tuttle & Company, R., Columbia City, Ind. Chop Feed ----- | 6945 | 3.0 | 9.0 | 8.0 | | Corn, oats, corn bran, corn feed meal |
| Ulrey & Company, A. A., Fairmount, Ind. Chop Feed ----- | 6241 | 2.5 | 8.0 | 7.0 | | Corn, oats, corn bran, corn feed meal |

⁴⁵ Succeeded by Mendenhall & Weaver⁴⁶ Succeeded by C. E. Smith

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Union Grain & Feed Company, The, Anderson, Ind. Star Chop Feed ----- | 8923 | 2.5 | 5.5 | 20.0 | Oats, corn feed meal, corn bran, oat middlings, oat hulls, ground barley | |
| Wabash Milling Company, Wabash, Ind. Summertons Chop ----- | 5969 | 2.0 | 8.0 | 9.0 | Wheat, corn, oats, corn bran, corn feed meal, ground corn screenings | |
| Walker & Son, J. M., Middletown, Ind. Walker's Chop Feed ----- | 8164 | 3.0 | 8.0 | 8.0 | Corn, oats, corn bran, corn feed meal | |
| Walton & Whisler, Atlanta, Ind. ⁴⁷ Chop Feed ----- | 5781 | 3.0 | 8.7 | 8.0 | Corn, oats, corn bran, corn feed meal | |
| Wellington Milling Company, Anderson, Ind. Wellington's A. X. A. Chop Feed ----- | 5145 | 3.0 | 9.0 | 9.0 | Corn, oats, corn bran, corn feed meal | |
| West Middleton Mill & Elevator Company, West Middleton, Ind. Chop Feed ----- | 6992 | 3.0 | 9.0 | 8.0 | Corn, oats, corn bran, corn feed meal | |
| Whelan, Omer G., Richmond, Ind. Chop Feed ----- | 7708 | 3.0 | 9.0 | 12.0 | Corn, oats, corn bran, corn feed meal | |
| Williamsport Grain Company, Williamsport, Ind. Chop Feed ----- | 7915 | 2.8 | 8.7 | 8.0 | Corn, oats, corn bran, corn feed meal | |
| Witmer Grain Company, Grabill, Ind. Chop Feed ----- | 4270 | 3.5 | 9.0 | 10.0 | Corn, oats, corn bran | |
| Worthington Grain Company, The, Worthington, Ind. Enterprise Chop Feed ----- | 8153 | 2.8 | 8.7 | 9.0 | Corn, oats, corn bran, corn feed meal, ground screenings from corn, wheat and oats | |
| Zionsville Milling Company, Zionsville, Ind. Chop Feed ----- | 4621 | 3.0 | 9.0 | 9.0 | Corn, oats, corn bran, corn feed meal | |
| COCOANUT BY-PRODUCTS | | | | | | |
| Procter & Gamble Distributing Company, The, Port Ivory, Staten Island, N. Y. P & G Copra Oil Meal ----- | 8652 | 6.0 | 20.0 | 12.0 | Dried cocoanut meats | |
| Shepard, Clark & Company, Cleveland, Ohio Cocoanut Oil Cake Meal ----- | 7401 | 7.0 | 21.0 | 10.0 | Dried and partially extracted cocoanut meats | |
| COTTONSEED MEAL | | | | | | |
| American Milling Company, Peoria, Ill. Amco Cottonseed Meal ----- | 5617 | 8.0 | 41.0 | 10.0 | Cottonseed product | |
| Ashbrook Company, The J. S., Mattoon, Ill. Diamond A. Cotton Seed Meal ----- | 9202 | 5.0 | 33.0 | 14.0 | Cottonseed product | |
| Badenoch Company, J. J., Chicago, Ill. Cotton Seed Meal ----- | 8764 | 6.0 | 36.0 | 12.0 | Cottonseed product | |
| Bartlett Company, The J. E., Jackson, Mich. Michigan "Farmer" Brand Cotton Seed Meal ----- | 5484 | 7.0 | 41.0 | 10.0 | Cottonseed product | |
| Farmer Brand Straight Cotton Seed Meal ----- | 8064 | 5.0 | 36.0 | 22.0 | Cottonseed product | |
| Farmer Brand "Choice" Cottonseed Meal ----- | 8823 | 5.0 | 41.0 | 6.0 | Cottonseed product | |
| Branch Company, T. O., Little Rock, Ark. Holstein Brand Cotton Seed Meal and Screened Cotton Seed Cake ----- | 8789 | 6.0 | 36.0 | 15.0 | Decorticated cottonseed | |
| Hereford Brand Cotton Seed Meal and Screened Cotton Seed Cake ----- | 8790 | 6.0 | 35.5 | 12.0 | Decorticated cottonseed | |
| Makfat Brand Cotton Seed Meal and Screened Cotton Seed Cake ----- | 8791 | 6.0 | 41.0 | 10.0 | Decorticated cottonseed | |

⁴⁷ Succeeded by A. G. Walton

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Brode & Company, F. W., Memphis, Tenn. | | | | | |
| Owl Brand Cottonseed Meal ----- | 4840 | 6.0 | 41.0 | 10.0 | Decorticated cottonseed |
| Jay Brand Cotton Seed Meal ----- | 7902 | 5.0 | 36.0 | 14.0 | Cottonseed product |
| Dove Brand Cotton Seed Meal ----- | 8009 | 6.0 | 38.6 | 12.0 | Cottonseed product |
| Buckeye Cotton Oil Company, The, Cincinnati, Ohio | | | | | |
| "Buckeye" Good Cottonseed Meal ----- | 8911 | 5.0 | 36.0 | 14.0 | Cottonseed meal, cottonseed hulls |
| Buhner Fertilizer Company, Seymour, Ind. | | | | | |
| Extra Choice Cotton Seed Meal ----- | 8851 | 8.0 | 44.0 | 10.0 | Cottonseed product |
| Burnett Company, The William A., Louisville, Ky. | | | | | |
| Burnett's Prime Cotton Seed Meal ----- | 7160 | 6.0 | 38.6 | 12.0 | Cottonseed Product |
| Bourbon Brand Cotton Seed Meal ----- | 7996 | 6.0 | 36.0 | 14.0 | Cottonseed product |
| Campbell, Oscar G., Camden, Ind. | | | | | |
| Choice Cottonseed Meal ----- | 6736 | 6.0 | 41.0 | 13.0 | Cottonseed product |
| Campbell & Company, C. L., Little Rock, Ark. | | | | | |
| Double Hump Camel Brand Cotton Seed Meal ----- | 7937 | 6.0 | 41.0 | 9.0 | Cottonseed product |
| Single Hump Camel Brand Cottonseed Meal ----- | 8031 | 6.0 | 38.5 | 12.0 | Cottonseed product |
| Baby Camel Brand Cotton Seed Meal ----- | 8144 | 6.0 | 36.0 | 12.0 | Cottonseed product |
| Chapin & Company, Hammond, Ind. | | | | | |
| Green Diamond Brand Cottonseed Meal ----- | 4028 | 8.0 | 41.0 | 10.0 | Cottonseed product |
| Chicago Heights Oil M'f'g. Company, Chicago, Ill. | | | | | |
| "Prize" Brand Cottonseed Meal ----- | 8000 | 6.0 | 38.5 | 10.0 | Cottonseed product |
| Choctaw Sales Company, Kansas City, Mo. | | | | | |
| "Choctaw Quality" Cottonseed Meal and Cake ----- | 7176 | 6.0 | 43.0 | 12.0 | Cottonseed product |
| Choctaw Standard Cottonseed Meal and Cake ----- | 7177 | 6.0 | 41.0 | 12.0 | Cottonseed product |
| Choctaw Prime Cottonseed Meal and Cake ----- | 8159 | 5.0 | 38.5 | 15.0 | Cottonseed product |
| Cincinnati Grain & Hay Company, The, Cincinnati, Ohio | | | | | |
| Cotton Seed Meal ----- | 8804 | 5.5 | 36.0 | 14.0 | Cottonseed meal, cottonseed hulls |
| Cottonseed Products Company, The, Louisville, Ky. | | | | | |
| Eagle Brand Cottonseed Meal ----- | 4671 | 6.0 | 41.0 | 10.0 | Decorticated cottonseed |
| Prime Cottonseed Meal ----- | 7103 | 6.0 | 38.0 | 14.0 | Decorticated cottonseed |
| Good Cottonseed Meal ----- | 7981 | 6.0 | 36.0 | 14.0 | Cottonseed product |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. | | | | | |
| Crescent Brand Cotton Seed Meal ----- | 2765 | 7.5 | 41.0 | 13.0 | Cottonseed product |
| Cottonseed Meal ----- | 4776 | 6.0 | 37.0 | 10.0 | Cottonseed product |
| Davis, S. P., Little Rock, Ark. | | | | | |
| Veribest Brand Cottonseed Meal ----- | 7432 | 6.0 | 38.5 | 10.0 | Decorticated cottonseed |
| Beauty Brand Cottonseed Meal and Cracked Screened Cake ----- | 8152 | 6.0 | 36.0 | 12.0 | Decorticated cottonseed |
| Goodluck Brand Cottonseed Meal and Cracked Screened Cake ----- | 8438 | 6.0 | 41.0 | 10.0 | Decorticated cottonseed |
| DeSoto Oil Company, Memphis, Tenn. | | | | | |
| "De Soto" ----- | 1520 | 8.0 | 38.5 | 10.0 | Cottonseed product |
| Soto Brand Cotton Seed Meal ----- | 4921 | 6.0 | 41.0 | 10.0 | Cottonseed meal, cottonseed hulls |
| Dewey Bros. Company, The, Blanchester, Ohio | | | | | |
| Queen Brand Cotton Seed Meal ----- | 3506 | 6.0 | 41.0 | 8.0 | Cottonseed product |
| Dixie Mills Company, East St. Louis, Ill. | | | | | |
| Anchor Cotton Seed Meal ----- | 7537 | 6.0 | 38.5 | 12.0 | Decorticated cottonseed |
| Holsum Brand of Cotton Seed Meal ----- | 8954 | 5.5 | 36.0 | 14.0 | Decorticated cottonseed |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Early & Daniel Company, The, Cincinnati, Ohio | | | | | | |
| Prime Cotton Seed Meal ----- | 8339 | 6.0 | 38.6 | 13.0 | | Cottonseed product |
| Good Cotton Seed Meal ----- | 8780 | 5.0 | 36.0 | 15.0 | | Cottonseed product |
| East St. Louis Cotton Oil Company, National Stock Yards, Ill. | | | | | | |
| East St. Louis Brand Cotton Seed Meal ----- | 6258 | 6.0 | 38.5 | 12.0 | | Cottonseed product |
| Illinois Brand Cottonseed Meal ----- | 7091 | 6.0 | 41.0 | 12.0 | | Cottonseed product |
| St. Clair Brand Cotton Seed Meal ----- | 8859 | 5.0 | 36.0 | 16.0 | | Cottonseed product |
| Eberts, H. F. H., Little Rock, Ark. | | | | | | |
| Milko Brand Cottonseed Meal ----- | 7428 | 5.5 | 38.6 | 12.0 | | Decorticated cottonseed |
| Bossy Brand Cotton Seed Meal ----- | 8133 | 5.0 | 36.0 | 15.0 | | Decorticated cottonseed |
| Milko Blue Tag Cotton Seed Meal ----- | 8462 | 5.5 | 41.0 | 10.0 | | Cottonseed product |
| Edinger & Company, Louisville, Ky. | | | | | | |
| Arrow Cotton Seed Meal ----- | 7920 | 6.0 | 38.0 | 12.0 | | Cottonseed product |
| Cotton Seed Meal ----- | 7921 | 6.0 | 41.0 | 12.0 | | Cottonseed product |
| E-Co Cotton Seed Meal ----- | 8053 | 6.0 | 36.0 | 14.0 | | Cottonseed product |
| Eldred Mill Company, Jackson, Mich. | | | | | | |
| Gusto Brand Cotton Seed Meal ----- | 8125 | 5.0 | 36.0 | 15.0 | | Cottonseed product |
| Feeders Supply Company, Kansas City, Mo. | | | | | | |
| "Equity Brand" Cotton Seed Meal ----- | 6167 | 6.0 | 41.0 | 10.5 | | Decorticated cottonseed |
| "Equity Brand" Red Tag Cotton Seed Meal and Cake ----- | 7690 | 5.0 | 38.6 | 12.0 | | Decorticated cottonseed |
| Ferger Grain Company, The, Cincinnati, Ohio | | | | | | |
| Nutritia Cotton Seed Meal ----- | 8395 | 6.0 | 38.6 | 12.0 | | Cottonseed product |
| French Seed Products Company, Piqua, Ohio | | | | | | |
| Piqua Brand Cottonseed Meal ----- | 6725 | 5.5 | 38.6 | 11.0 | | Cottonseed product |
| Goeke Company, Edward F., Evansville, Ind. | | | | | | |
| Prime Cotton Seed Meal ----- | 8878 | 8.0 | 38.6 | 11.0 | | Cottonseed product |
| Goodrich Bros. Hay & Grain Company, Winchester, Ind. | | | | | | |
| Climax Cotton Seed Meal ----- | 6805 | 7.0 | 41.0 | 10.5 | | Cottonseed product |
| Magic Cottonseed Meal ----- | 7317 | 6.0 | 36.0 | 14.0 | | Cottonseed product |
| Hales & Edyards Company, Chicago, Ill. | | | | | | |
| Cottonseed Meal ----- | 9118 | 5.0 | 36.0 | 12.0 | | Cottonseed product |
| Hayes Grain & Commission Company, Little Rock, Ark. | | | | | | |
| Supreme Brand Cotton Seed Meal ----- | 8824 | 6.0 | 38.6 | 10.0 | | Pressed cottonseed |
| Arkansaw Brand Cotton Seed Meal ----- | 8825 | 5.0 | 36.0 | 15.0 | | Pressed cottonseed |
| Nutrine Brand Cottonseed Meal ----- | 9419 | 7.0 | 41.0 | 12.0 | | Cottonseed product |
| Hewitt, C. G., Montgomery, Ala. | | | | | | |
| Puritan Brand Cottonseed Meal ----- | 7441 | 6.5 | 41.0 | 10.0 | | Cottonseed product |
| Cotton Seed Meal ----- | 9029 | 5.0 | 36.0 | 15.0 | | Cottonseed product |
| Humphreys, Godwin Company, Memphis, Tenn. | | | | | | |
| "Southern" Cottonseed Meal ----- | 4036 | 6.0 | 37.0 | 12.0 | | Cottonseed product |
| Dixie Brand Cottonseed Meal ----- | 5064 | 6.0 | 41.0 | 12.0 | | Pressed cottonseed |
| Forfat Brand Cottonseed Meal ----- | 7116 | 6.0 | 38.5 | 12.0 | | Cottonseed product |
| Danish Brand Cottonseed Meal ----- | 7178 | 5.0 | 36.0 | 15.0 | | Cottonseed product |
| Imperial Cotto Sales Company, Chicago, Ill. | | | | | | |
| Imperial Brand Cottonseed Meal ----- | 8001 | 5.0 | 36.0 | 14.0 | | Cottonseed product |
| Imperial Cotto Brand Choice Cottonseed Meal ----- | 8092 | 6.0 | 41.0 | 12.0 | | Cottonseed product |
| Imperial Cotto Brand Prime Cottonseed Meal ----- | 8093 | 5.0 | 38.5 | 14.0 | | Cottonseed product |
| Imperial Cotto Brand Extra Choice Cotton- seed Meal ----- | 8401 | 8.5 | 43.0 | 10.0 | | Cottonseed product |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Indiana Seed Company, The, Indianapolis, Ind. Monument Brand Cottonseed Meal ----- | 4079 | 6.5 | 41.0 | 13.0 | Cottonseed product |
| Pony Brand Cottonseed Meal ----- | 7426 | 6.0 | 36.0 | 14.0 | Cottonseed product |
| Johnson, H. N., Athens, Ga. Prime Cotton Seed Meal ----- | 7740 | 6.0 | 38.6 | 10.0 | Decorticated cottonseed |
| Cotton Seed Meal ----- | 8061 | 5.5 | 36.0 | 15.0 | Cottonseed product |
| Johnson & Company, W. B., Memphis, Tenn. Supreme Brand Cotton Seed Meal ----- | 6930 | 7.0 | 41.0 | 10.0 | Decorticated cottonseed |
| "Winner Brand" Cotton Seed Meal ----- | 8651 | 5.5 | 36.0 | 14.0 | Cottonseed meal, 25% cottonseed hulls |
| Imperial Brand Cotton Seed Meal ----- | 9212 | 6.0 | 38.6 | 12.0 | Decorticated cottonseed |
| Jordan, Geo. M., Vincennes, Ind. Cotton Seed Meal ----- | 8861 | 6.0 | 37.0 | 14.0 | Cottonseed product |
| Keeton & Company, J. P., Atlanta, Ga. "Southern King Brand" Cotton Seed Meal---- | 8098 | 6.0 | 38.6 | 10.0 | Cottonseed product |
| Lanier Bros., Nashville, Tenn. Jersey Brand Cottonseed Meal ----- | 5537 | 6.0 | 38.6 | 10.0 | Decorticated cottonseed |
| Canary Brand Cottonseed Meal ----- | 5538 | 6.0 | 41.0 | 10.0 | Decorticated cottonseed |
| Holstein Brand Cottonseed Meal ----- | 8006 | 5.0 | 36.0 | 14.0 | Cottonseed product |
| Lovitt & Company, L. B., Memphis, Tenn. Memphis Brand Cottonseed Meal ----- | 6849 | 6.0 | 38.6 | 12.0 | Cottonseed product |
| Lovit Brand Cottonseed Meal ----- | 7460 | 6.5 | 41.0 | 10.0 | Cottonseed product |
| "Thirty Six" Brand Cottonseed Meal----- | 9378 | 5.5 | 36.0 | 14.0 | Cottonseed product |
| Merchants Hay & Grain Company, Indianapolis, Ind. Choice Cottonseed Meal ----- | 4726 | 6.0 | 41.0 | 10.0 | Cottonseed product |
| Montgomery & Company, C. L., Memphis, Tenn. Eagle Brand Cotton Seed Meal ----- | 8239 | 6.0 | 38.6 | 12.0 | Cottonseed product |
| Star Brand Cotton Seed Meal ----- | 8315 | 6.0 | 36.0 | 14.0 | Cottonseed product |
| McCoy & Garten, Indianapolis, Ind. Choice Cottonseed Meal ----- | 5152 | 7.0 | 41.0 | 10.0 | Cottonseed product |
| Prime Cotton Seed Meal ----- | 8753 | 6.0 | 38.5 | 10.0 | Cottonseed product |
| Cotton Seed Meal ----- | 8912 | 6.0 | 36.0 | 10.0 | Cottonseed product |
| National Feed Company, St. Louis, Mo. Cotton Seed Meal ----- | 3024 | 7.5 | 41.0 | 14.0 | Cottonseed product |
| N. F. Co's Cotton Seed Meal ----- | 5859 | 7.3 | 39.9 | 14.0 | Cottonseed product |
| Prime Cotton Seed Meal ----- | 8788 | 6.0 | 38.5 | 14.0 | Cottonseed product |
| National Cotton Seed Meal ----- | 8860 | 5.0 | 36.0 | 14.0 | Cottonseed product |
| Nothorn, W. C., Little Rock, Ark. Butterfly Cottonseed Meal and Cake----- | 6525 | 6.0 | 39.0 | 12.0 | Cottonseed product |
| Standard Brand Cotton Seed Meal ----- | 8198 | 6.0 | 36.0 | 12.0 | Decorticated cottonseed |
| Bee Brand Cotton Seed Meal or Cake----- | 8320 | 6.0 | 41.0 | 10.0 | Cottonseed product |
| Ohio Valley Seed Company, Evansville, Ind. Crown Brand Cottonseed Meal ----- | 4091 | 7.0 | 41.0 | 10.0 | Decorticated cottonseed |
| Osage Cotton Oil Company, Chattanooga, Tenn. Silo Brand (Standard Quality) Cottonseed Meal and Cake ----- | 6395 | 6.0 | 41.0 | 12.0 | Cottonseed product |
| Silo Brand (Special Quality) Cottonseed Meal and Cake ----- | 6964 | 7.0 | 43.0 | 12.0 | Cottonseed product |
| Silo Brand Cottonseed Meal and Cake----- | 8032 | 5.0 | 38.5 | 14.0 | Cottonseed product |
| Park & Pollard Company of Illinois, The, Chicago, Ill. The Park & Pollard Co. of Illinois' Cotton- seed Meal ----- | 9210 | 5.5 | 36.0 | 14.0 | Cottonseed product |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Paxson, C. E., Elkhart, Ind. Cottonseed Meal ----- | 6589 | 6.0 | 37.0 | 14.0 | Cottonseed product |
| Phoenix Cotton Oil Company, Memphis, Tenn. Phoenix Prime Cottonseed Meal and Cottonseed Cake ----- | 8405 | 5.0 | 38.6 | 12.5 | Cottonseed product |
| Phoenix Cottonseed Meal and Cottonseed Cake ----- | 8406 | 4.5 | 36.0 | 15.0 | Cottonseed product |
| Pierce Elevator Company, The, Union City, Ind. Choice Cottonseed Meal ----- | 6267 | 7.0 | 41.0 | 10.0 | Cottonseed product |
| Pineoffs Company, Maurice, Chicago, Ill. Victoria Brand Cottonseed Meal ----- | 8733 | 6.0 | 38.5 | 12.0 | Cottonseed product |
| Pineco Brand Cottonseed Meal ----- | 8734 | 6.0 | 36.0 | 14.0 | Cottonseed product |
| Planters Cotton Oil Company, Dallas, Texas Prime Cotton Seed Meal and Cake ----- | 7463 | 6.0 | 43.0 | 11.0 | Cottonseed product |
| Poe Cottonseed Products Company, Memphis, Tenn. "Butter Cup" Brand of Prime Cottonseed Meal ----- | 8293 | 6.0 | 38.6 | 12.0 | Cottonseed product |
| "Golden Rod" Brand, a Good Cottonseed Meal ----- | 8294 | 5.0 | 36.0 | 14.0 | Cottonseed product |
| Dandelion Brand, Choice Cottonseed Meal ----- | 8710 | 6.0 | 41.1 | 10.0 | Cottonseed product |
| Rapier Sugar Feed Company, Owensboro, Ky. Rapier's Brand Choice Grade Cottonseed Meal ----- | 6278 | 7.5 | 41.0 | 10.0 | Decorticated cottonseed |
| Rapier's Cottonseed Meal ----- | 6693 | 7.0 | 38.5 | 14.0 | Decorticated cottonseed |
| Roberts Cotton Oil Company, Memphis, Tenn. Good Cotton Seed Meal ----- | 8708 | 5.0 | 36.0 | 14.0 | Cottonseed product |
| Simmons & Norris, Cincinnati, Ohio Excello Cottonseed Meal ----- | 9069 | 5.0 | 36.0 | 14.0 | Cottonseed product |
| Southern Cotton Oil Company, The, Memphis, Tenn. Cotton Seed Meal ----- | 8821 | 6.0 | 36.0 | 15.0 | Cottonseed product |
| Southern Seed Company, Louisville, Ky. Atlas Cotton Seed Meal ----- | 3385 | 6.0 | 41.0 | 9.0 | Cottonseed product |
| Economy Cotton Seed Meal ----- | 8797 | 5.0 | 36.0 | 15.0 | Cottonseed product |
| Stockman's Feed Company, Kansas City, Mo. Choice Cotton Seed Meal or Cake ----- | 7208 | 5.0 | 41.0 | 10.0 | Cottonseed product |
| Texas Cake & Linter Company, Dallas, Texas "Texoma" Brand High Grade Cottonseed Meal ----- | 6180 | 6.0 | 41.0 | 10.0 | Decorticated cottonseed |
| Interstate Brand Cottonseed Meal and Cracked Cake ----- | 7034 | 6.0 | 38.6 | 12.0 | Decorticated cottonseed |
| Sunset Brand Prime Cracked Cottonseed Cake and Meal ----- | 8598 | 5.0 | 41.0 | 14.0 | Cottonseed product |
| Union Seed & Fertilizer Company, New York, N. Y. "American Red Tag" Cottonseed Meal ----- | 6210 | 7.0 | 38.5 | 11.5 | Cottonseed product |
| Surety Brand Cotton Seed Meal ----- | 8264 | 5.5 | 36.0 | 14.0 | Cottonseed product |
| Wagner-White Company, Inc., Jackson, Mich. Waw-Co Cottonseed Meal ----- | 8908 | 6.0 | 38.5 | 12.0 | Cottonseed product |
| Waw-Co Brand Cottonseed Meal ----- | 8927 | 5.0 | 36.0 | 22.0 | Cottonseed product |
| Walsh & Company, James, Lawrenceburg, Ind. Cotton Seed Meal ----- | 8812 | 8.0 | 38.6 | 11.0 | Cottonseed product |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Windle, Allen J., West Lafayette, Ind. Cotton Seed Meal ----- | 3764 | 7.0 | 38.5 | 15.0 | Cottonseed product |
| COLD PRESSED COTTONSEED | | | | | |
| Bartlett Company, J. E., Jackson, Mich. Cold Pressed Cottonseed ----- | 6494 | 5.0 | 26.0 | 25.0 | Pressed whole cottonseed including hulls |
| Chicago Heights Oil M'fg. Company, Chicago, Ill. "Prize" Cold Pressed Cottonseed ----- | 7002 | 6.0 | 25.0 | 20.0 | Pressed whole cottonseed including hulls |
| Davis, S. P., Little Rock, Ark. Standard Brand Cold Pressed Cotton Seed---- | 6272 | 6.0 | 26.0 | 25.0 | Cottonseed meal, delinted cottonseed hulls |
| Feeders Supply Company, Kansas City, Mo. Equity Brand Cold Pressed Cotton Seed----- | 7080 | 6.0 | 20.0 | 23.0 | Pressed whole cottonseed including hulls |
| Mississippi Delta Planting Company, Scott, Miss. Acme Brand Cold Pressed Cottonseed----- | 6125 | 7.0 | 23.0 | 27.0 | Whole pressed delinted cottonseed including hulls |
| COTTONSEED MEAL AND COTTON-SEED HULLS (COTTONSEED FEED) | | | | | |
| American Cotton Hull & Fibre Company, The, Memphis, Tenn. "Cyclone" Cottonseed Feed ----- | 4971 | 3.0 | 20.0 | 23.0 | Cottonseed meal, ground delinted cottonseed hulls |
| Ashbrook Company, The J. S., Mattoon, Ill. Cotton Seed Feed ----- | 9385 | 3.5 | 20.0 | 27.0 | Cottonseed meal, ground delinted cottonseed hulls |
| Buckeye Cotton Oil Company, The, Cincinnati, Ohio Buco Cottonseed Feed ----- | 7965 | 3.5 | 20.0 | 27.0 | Cottonseed meal, cottonseed hulls |
| "Buckeye" Good Cottonseed Meal ----- | 8911 | 5.0 | 36.0 | 14.0 | Cottonseed meal, cottonseed hulls |
| Burnett Company, Wm. A., Louisville, Ky. Cotton Seed Feed ----- | 9355 | 6.0 | 35.0 | 12.0 | Cottonseed meal, cottonseed hulls |
| Cottonseed Products Company, The, Louisville, Ky. Cotton Seed Feed ----- | 8894 | 5.5 | 33.4 | 14.0 | Cottonseed meal, cottonseed hulls |
| East St. Louis Cotton Oil Company, National Stock Yards, Ill. Cottonseed Feed ----- | 7459 | 6.0 | 34.0 | 15.0 | Cottonseed meal, cottonseed hulls |
| Humphreys-Godwin Company, Memphis, Tenn. 77 Cottonseed Feed ----- | 6115 | 4.0 | 20.0 | 28.0 | Cottonseed meal, delinted cottonseed hulls |
| Imperial Cotto Sales Company, Chicago, Ill. Imperial Cotto Brand Cottonseed Feed----- | 8094 | 3.5 | 20.0 | 25.0 | Cottonseed meal, delinted cottonseed hulls |
| Johnson & Company, W. B., Memphis, Tenn. "Perfection" Brand Cotton Seed Feed----- | 9205 | 3.0 | 20.0 | 26.0 | Cottonseed meal, cottonseed hulls |
| Lanier Bros., Nashville, Tenn. Durham Brand Cottonseed Feed ----- | 8947 | 5.0 | 20.0 | 22.0 | Cottonseed meal, cottonseed hulls |
| Memphis Cotton Hull & Fibre Company, Ltd., Memphis, Tenn. "Cyclone" Cotton Seed Feed ----- | 8704 | 3.0 | 20.0 | 26.0 | Cottonseed meal, ground delinted cottonseed hulls |
| Poe Cottonseed Products Company, Memphis, Tenn. "Raven Brand" Cottonseed Feed ----- | 8295 | 3.0 | 20.0 | 25.0 | Cottonseed meal, cottonseed hulls |
| "Poco Brand" Cottonseed Feed ----- | 8711 | 5.0 | 33.4 | 17.0 | Cottonseed meal, cottonseed hulls |
| Gold Dust Brand Cottonseed Feed ----- | 8740 | 4.0 | 30.0 | 23.0 | Cottonseed meal, cottonseed hulls |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Southern Seed Company, Louisville, Ky. Atlas Cotton Seed Feed ----- | 8792 | 3.0 | 20.0 | 28.0 | Cottonseed meal, ground cottonseed hulls |
| Tennessee Fibre Company, Memphis, Tenn. Creamo Brand Cottonseed Feed ----- | 8495 | 3.5 | 20.0 | 25.0 | Cottonseed meal, cottonseed hulls |
| Union Seed & Fertilizer Company, West New York, N. J. Columbia Cotton Seed Feed ----- | 8653 | 3.0 | 20.5 | 25.0 | Cottonseed meal, cottonseed hulls |
| COTTONSEED HULLS | | | | | |
| Tennessee Fibre Company, Memphis, Tenn. Cotton Seed Hulls ----- | 4182 | 1.0 | 3.0 | 50.0 | Cottonseed hulls |
| LINSEED MEAL | | | | | |
| American Linseed Company, New York, N. Y. Old Process Linseed Oil Meal ----- | 4859 | 6.0 | 34.0 | 9.0 | Flaxseed product |
| Arctady Farms Milling Company, Chicago, Ill. Old Process Linseed Oil Meal ----- | 8800 | 6.0 | 32.0 | 10.0 | Flaxseed product |
| Badenoch Company, J. J., Chicago, Ill. Old Process Oil Meal ----- | 8763 | 6.0 | 30.0 | 9.0 | Flaxseed product |
| Chicago Heights Oil Mfg. Co., Chicago, Ill. Old Process Oil Meal ----- | 6351 | 6.0 | 32.0 | 10.0 | Flaxseed product |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. Linseed Meal ----- | 2380 | 6.0 | 32.0 | 11.0 | Flaxseed product |
| Dickinson Company, The Albert, Chicago, Ill. Dickinson's Linseed Meal ----- | 6404 | 5.0 | 32.0 | 10.0 | Flaxseed product |
| Early & Daniel Company, The, Cincinnati, Ohio Old Process Oil Meal ----- | 8210 | 5.0 | 30.0 | 10.0 | Flaxseed product |
| Evans Linseed Oil Company, Indianapolis, Ind. Linseed Oil Meal ----- | 773 | 6.0 | 32.0 | 15.0 | Flaxseed product |
| Hayes Grain & Commission Company, Chicago, Ill. Indiana Brand Old Process Linseed oil Meal -- | 9373 | 5.0 | 33.0 | 10.0 | Flaxseed product |
| Hirst & Begley Linseed Company, Chicago, Ill. Hirst & Begley Linseed Co. Brand Linseed Meal ----- | 7165 | 6.0 | 34.0 | 9.0 | Flaxseed product |
| Kellogg & Sons, Inc., Spencer, Buffalo, N. Y. Old Process Oil Meal ----- | 5877 | 5.0 | 33.0 | 10.0 | Flaxseed product |
| Mayflower Mills, Fort Wayne, Ind. Oil Cake Meal ----- | 3260 | 6.0 | 30.0 | 9.0 | Flaxseed product |
| Merchants Hay & Grain Company, Indianapolis, Ind. Linseed Meal ----- | 4957 | 8.0 | 36.0 | 10.0 | Flaxseed product |
| Metzger Seed & Oil Company, The, Toledo, O. Old Process Oil Meal ----- | 6672 | 5.0 | 30.0 | 10.0 | Flaxseed product |
| Midland Linseed Products Company, Minneapolis, Minn. Crescent Brand Pure Old Process Ground Linseed Cake ----- | 7125 | 5.0 | 29.0 | 9.5 | Flaxseed product |
| Midland Brand Pure Old Process Ground Linseed Cake ----- | 8570 | 5.0 | 32.0 | 9.5 | Flaxseed product |
| Argentine Brand Pure Old Process Ground Linseed Cake ----- | 9000 | 5.0 | 30.0 | 9.5 | Flaxseed product |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Minnesota Linseed Oil Company, Minneapolis, Minn. Ground Oil Cake or Oil Meal ----- | 5405 | 5.0 | 34.0 | 11.0 | | Flaxseed product |
| McCoy & Garten, Indianapolis, Ind. Old Process Linseed Meal ----- | 8913 | 5.0 | 34.0 | 9.0 | | Flaxseed product |
| National Feed Company, St. Louis, Mo. Linseed Oil Meal ----- | 4592 | 7.0 | 32.0 | 7.0 | | Flaxseed product |
| Northern Linseed Oil Company, Minneapolis, Minn. "Pure Old Process Ground Linseed Cake" ---- | 5779 | 6.0 | 33.0 | 9.0 | | Flaxseed product |
| Park & Pollard Company of Illinois, The, Chicago, Ill. The Park & Pollard Co. of Illinois' Pure Old Process Ground Linseed Cake ----- | 9209 | 5.0 | 32.0 | 9.5 | | Flaxseed product |
| Pincoffs Company, Maurice, Chicago, Ill. Pinco Brand Old Process Oil Meal ----- | 8732 | 6.0 | 32.0 | 10.0 | | Flaxseed product |
| Sherwin-Williams Company, The, Cleveland, O. S. W. C. Linseed Meal ----- | 1723 | 6.0 | 33.0 | 8.0 | | Flaxseed product |
| Simmons & Norris, Cincinnati, Ohio. Excello Old Process Oil Meal ----- | 9338 | 5.0 | 30.0 | 10.0 | | Flaxseed product |
| Toledo Seed & Oil Company, The, Toledo, Ohio Major Brand Old Process Oil Meal ----- | 8713 | 6.0 | 33.0 | 10.0 | | Flaxseed product |
| Valparaiso Grain & Elevator Company, Valparaiso, Ind. Ground Oil Cake ----- | 1404 | 5.0 | 30.0 | 12.0 | | Flaxseed product |
| Washburn-Crosby Company, Minneapolis, Minn. Ground Linseed Cake Oil Meal ----- | 7234 | 5.0 | 32.0 | 10.0 | | Flaxseed product |
| UNSCREENED FLAXSEED OIL FEED | | | | | | |
| Laxo Cake Meal Company, The, Chicago, Ill. Old Process Laxo Cake Meal ----- | 4618 | 6.0 | 25.0 | 12.0 | | Ground cake from flaxseed and field seeds (wheat, wild buckwheat, pigeon grass, wild mustard) |
| LINSEED MEAL AND SCREENINGS OIL FEED | | | | | | |
| American Milling Company, Peoria, Ill. Amco Old Process Linseed Oil Meal and Screenings Oil Feed ----- | 8378 | 5.0 | 30.0 | 10.0 | | Linseed meal, ground screenings oil feed |
| Chicago Heights Oil Mfg. Company, Chicago, Ill. Linseed Screenings Oil Feed ----- | 9318 | 6.0 | 15.0 | 15.0 | | Ground flaxseed screenings |
| VELVET BEAN FEED | | | | | | |
| Alabama Black Belt Company, Montgomery, Ala. Velvet Bean and Pod Feed Meal ----- | 8568 | 4.0 | 18.5 | 15.0 | | Ground velvet beans, pods |
| Velvet Bean & Pod Feed ----- | 9200 | 4.0 | 16.5 | 15.0 | | Ground velvet beans, pods |
| Bartlett Company, J. E., Jackson, Mich. Velvet Bean Feed ----- | 9416 | 4.5 | 18.0 | 15.0 | | Ground velvet beans, pods. |
| Butler County Feed & Milling Company, Greenville, Ala. Velvet Bean Feed ----- | 8964 | 4.2 | 16.0 | 14.0 | | Ground velvet beans, pods |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Fort Deposit Feed & Milling Company, Fort Deposit, Ala. Velvet Bean Feed | 9258 | 4.2 | 16.5 | 14.0 | | Ground velvet beans, pods |
| Gibson Live Stock & Feed Company, Princeton, Ind. Velvet Bean and Pod Feed | 9408 | 4.0 | 16.5 | 15.0 | | Ground velvet beans, pods |
| Hewitt, C. G., Montgomery, Ala. Supreme Brand Velvet Bean Feed | 8960 | 4.0 | 17.0 | 15.0 | | Ground velvet beans, pods |
| Joseph Company, Dan, Columbus, Ga. Diamond Brand Velvet Bean Feed | 8874 | 4.0 | 17.5 | 15.0 | | Ground velvet beans, pods |
| Loogootee Milling Company, Loogootee, Ind. Velvet Bean Feed | 9430 | 3.8 | 16.5 | 15.0 | | Ground velvet beans, pods |
| Maumee Valley Mills, New Haven, Ind. Velvet Bean Feed | 8998 | 4.0 | 15.0 | 20.0 | | Ground velvet beans, pods |
| Smith, Roy & Mark, Tennille, Ga. Velvet Bean Feed | 8429 | 4.0 | 17.0 | 15.0 | | Ground velvet beans, hulls |
| PEANUT FEED | | | | | | |
| Brode & Company, F. W., Memphis, Tenn. B. B. Brand Unhulled Peanut Oil Feed | 9157 | 5.0 | 30.0 | 14.0 | | Peanut meal, peanut hulls |
| Buckeye Cotton Oil Company, Cincinnati, Ohio Peanut Feed | 9025 | 6.0 | 30.0 | 22.0 | | Peanut meal, hulls |
| Donalsonville Oil Mill, Donalsonville, Ga. Imperial Brand Unhulled Peanut Oil Feed | 9130 | 7.5 | 32.0 | 23.0 | | Peanut meal, hulls |
| Lovitt & Company, L. B., Memphis, Tenn. "Victory Brand" Peanut Feed | 9156 | 6.0 | 30.0 | 25.0 | | Peanut meal, peanut hulls |
| McCoy & Garten, Indianapolis, Ind. Unhulled Peanut Oil Feed | 9139 | 6.0 | 30.0 | 22.0 | | Peanut meal, hulls |
| BARLEY CLEANINGS | | | | | | |
| Klipfel & Company, P. L., Chicago, Ill. Malted Barley Cleanings | 6556 | 1.2 | 20.8 | 15.9 | | Malted barley cleanings |
| DISTILLERS' DRIED GRAINS | | | | | | |
| American Milling Company, Peoria, Ill. Empire State Dairy Feed | 8014 | 8.0 | 30.0 | 14.0 | | Corn distillers' dried grains |
| Atlas Feed & Milling Company, Peoria, Ill. Atlas Distillers' Grains | 8303 | 6.0 | 30.0 | 14.0 | | Distillers dried grains from corn, oats, barley, rye |
| Chapin & Company, Hammond, Ind. Ajax Flakes | 7225 | 10.0 | 30.0 | 14.0 | | Corn distillers' grains |
| Conroy, M. A., Jeffersonville, Ind. Sunny Brook Distillers' Dried Grains | 8308 | 7.0 | 29.0 | 14.2 | | Distillers' dried grains from corn, rye, malt |
| Continental Cereal Company, Peoria, Ill. Continental Gluten Feed | 6066 | 6.0 | 26.5 | 10.0 | | Distillers' dried grains from corn, oats, rye, barley |
| Dewey Bros. Company, The, Blanchester, Ohio Corn Three D. Grains | 3124 | 9.0 | 26.0 | 13.0 | | Distillers dried grains |
| Eagle Three D. Grains | 3593 | 10.0 | 30.0 | 13.0 | | Distillers' dried corn grains |
| Donahue-Stratton Company, Milwaukee, Wis. Onyx Dried Grains | 7200 | 7.0 | 19.0 | 19.0 | | Dried grains from corn, malt, malt sprouts |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Edinger & Company, Louisville, Ky. Arrow Distillers Dried Grains ----- | 8035 | 10.0 | 30.0 | 11.0 | Distillers' dried grains from corn, barley, malt, rye |
| Glenmore Distilleries Company, Louisville, Ky. Distillers' Dried Grains ----- | 7916 | 8.0 | 28.0 | 12.0 | Distillers' dried grains from corn, barley, malt, rye |
| McCoy & Garten, Indianapolis, Ind. Distillers Corn Grains ----- | 8025 | 8.0 | 30.0 | 14.0 | Corn distillers' dried grains |
| Old Vincennes Distillery Company, Vincennes, Ind. O. V. D. Dried Grains ----- | 8030 | 10.0 | 30.0 | 13.0 | Distillers' dried grains from corn, rye, malt |
| Probst & Kassebaum, Indianapolis, Ind. A. Dairy Feed ----- | 8181 | 8.0 | 28.0 | 14.0 | Corn distillers' dried grains |
| Semans Edible Oils Company, Indianapolis, Ind. Corn Distillers' Dried Grains (Jersey Brand)--- | 8420 | 10.0 | 30.0 | 12.0 | Distillers' dried grains from corn, rye, barley |
| Squibb & Company, W. P., Lawrenceburg, Ind. Squibbs Distillery Dried Grains ----- | 7950 | 9.0 | 30.0 | 15.0 | Corn, rye, barley malt |
| Ubiko Milling Company, Cincinnati, Ohio Fourex (XXXX) Distillers Dried Corn Grains-- | 7311 | 12.0 | 31.0 | 13.0 | Distillers' dried corn grains |
| Walsh & Company, James, Lawrenceburg, Ind. Walden Dried Grains ----- | 8069 | 11.5 | 28.5 | 14.5 | Corn distillers' dried grains |
| BREWERS' DRIED GRAINS | | | | | |
| Bartlett Company, J. E., Jackson, Mich. Dried Brewers' Grains ----- | 8015 | 5.0 | 25.0 | 13.0 | Brewers' dried grains from barley |
| Berghoff Brewing Association, Fort Wayne, Ind. Brewers Dried Grains ----- | 8701 | 7.0 | 19.0 | 17.0 | Barley malt, refined corn grits |
| Butler & Company, Edw. J., Chicago, Ill. Dried Brewers Grains ----- | 5719 | 5.0 | 25.0 | 18.0 | Brewers dried grains from barley, corn grits, rice |
| Centlivre Brewing Company, C. L., Fort Wayne, Ind. "Centlivre's Brewers Dried Grains" ----- | 5552 | 6.0 | 19.0 | 18.0 | Barley malt, refined corn grits |
| Donahue-Stratton Company, Milwaukee, Wis. "Tomahawk" Brand Pure Dried Brewers Grains ----- | 5978 | 6.0 | 26.0 | 14.0 | Brewers dried grains |
| Edinger & Company, Louisville, Ky. Arrow Brewers Grains ----- | 8036 | 5.0 | 25.0 | 17.0 | Brewers' dried grains from barley malt, rice, corn grits |
| Evansville Dried Malt & Feed Company, The, Evansville, Ind. Dried Brewers Grains ----- | 6384 | 5.0 | 24.0 | 16.0 | Malted barley, cereal corn flakes, corn grits |
| Fruechtenicht, Henry, Louisville, Ky. Blue Grass Dried Brewers Grains----- | 8577 | 6.0 | 26.0 | 15.0 | Brewers dried grains from barley malt, corn grits, rice |
| Jones Company, J. H., Louisville, Ky. Big J. Brewers Dried Grains ----- | 7724 | 5.0 | 25.0 | 14.0 | Brewers dried grains from corn grits, barley, malt |
| Milwaukee Grains & Feed Company, Milwaukee, Wis. "Crown" Dried Brewers Grains ----- | 5587 | 5.0 | 25.0 | 15.0 | Brewers dried grains from barley malt, corn grits |
| Mueller, E. P., Chicago, Ill. Brewers' Dried Grains ----- | 8630 | 5.0 | 25.0 | 17.0 | Brewers dried grains from barley malt, corn grits |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Muessel Brewing Company, The, South Bend, Ind. Muessel's Dried Brewers Grains ----- | 5292 | 6.1 | 24.0 | 16.1 | Brewers' dried grains from barley, corn |
| Neumond, Inc., K. & E., St. Louis, Mo. "Goldnes Kalb" Dried Brewers' Grains----- | 7132 | 6.0 | 24.0 | 13.0 | Malted barley, rice, corn grits |
| Peoples Brewing Company, The, Terre Haute, Ind. Brewers Dried Grains ----- | 5585 | 5.5 | 23.0 | 15.2 | Brewers' dried grains from barley malt, granulated rice, refined corn flakes |
| Rankin & Company, M. G., Milwaukee, Wis. Durham Dried Brewers Grains ----- | 8682 | 6.0 | 26.0 | 16.0 | Brewers dried grains from malted barley |
| Scottsburg Elevator, Scottsburg, Ind. Brewers' Dried Grains ----- | 8449 | 6.0 | 24.0 | 18.0 | Brewers dried grains from corn grits, barley malt, rice |
| Western Grains & Feed Company, Chicago, Ill. Milkmaid Dried Brewers' Grains ----- | 6777 | 5.0 | 25.0 | 16.0 | Brewers dried grains from malted barley, rice |
| Pure Dried Brewers' Grains ----- | 6839 | 5.0 | 21.0 | 17.0 | Malted barley, rice |
| YEAST GRAINS | | | | | |
| Mueller, Edward P., Chicago, Ill. Fleischman's Dried Grains ----- | 7762 | 7.0 | 19.0 | 19.0 | Dried yeast grains from corn, barley malt, malt sprouts |
| MALT SPROUTS | | | | | |
| Klipfel & Company, P. L., Chicago, Ill. Malt Sprouts ----- | 3898 | 1.5 | 23.5 | 16.4 | Malt sprouts |
| Mueller, E. P., Chicago, Ill. Malt Sprouts ----- | 8709 | 2.0 | 20.0 | 15.0 | Malt sprouts |
| Raschka, Wm., Ainsworth, Ind. Malt Sprouts ----- | 4023 | 1.5 | 25.0 | 12.0 | Malt sprouts |
| Zorn Brewing Company, Ph., Michigan City, Ind. Malt Sprouts ----- | 5997 | 1.0 | 18.0 | 18.0 | Malt sprouts |
| CORN GLUTEN FEED | | | | | |
| Badenoch Company, J. J., Chicago, Ill. Gluten Feed ----- | 8879 | 10.0 | 23.0 | 8.0 | Corn gluten feed |
| Chicago Heights Oil Mfg. Co., Chicago, Ill. "Prize" Corn Glutenfeed ----- | 7266 | 1.0 | 23.0 | 8.5 | Corn gluten feed |
| Clinton Sugar Refining Company, Clinton, Iowa Clinton Corn Gluten Feed ----- | 5452 | 3.0 | 23.0 | 8.0 | Corn gluten feed |
| Corn Products Refining Company, New York, N. Y. Buffalo Corn Gluten Feed ----- | 5530 | 1.0 | 23.0 | 8.5 | Corn gluten feed |
| Douglas Company, Cedar Rapids, Iowa Douglas Corn Gluten Feed ----- | 6932 | 1.0 | 23.0 | 8.0 | Corn gluten feed |
| Hubinger Bros. Company, J. C., Keokuk, Iowa K. K. K. Corn Gluten Feed ----- | 6638 | 2.4 | 23.0 | 7.5 | Corn gluten feed |
| Mead Johnson & Company, Evansville, Ind. Mead's Corn Gluten Feed and Barley Malt.... | 9093 | 10.0 | 45.0 | 7.0 | Corn gluten feed, barley malt |
| McCoy & Garten, Indianapolis, Ind. Corn Gluten Feed ----- | 8838 | 3.0 | 24.0 | 7.0 | Corn gluten feed |

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|---|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Piel Bros. Starch Company, Indianapolis, Ind. Hoosier Gluten Feed ----- | 2856 | 2.0 | 14.0 | 8.0 | | Corn gluten feed artificially colored with orange |
| Staley Manufacturing Company, A. E., Decatur, Ill. Staley's Corn Gluten Feed ----- | 8999 | 2.5 | 20.0 | 12.0 | | Corn gluten feed |
| Union Starch & Refining Company, Edinburg, Ind. Union Corn Gluten Feed ----- | 9132 | 2.0 | 24.0 | 6.3 | | Corn gluten feed |
| CORN GLUTEN MEAL | | | | | | |
| Corn Products Refining Company, New York, N. Y. Diamond Corn Gluten Meal ----- | 6979 | 1.0 | 40.0 | 4.0 | | Corn gluten meal |
| CORN GERM MEAL | | | | | | |
| American Hominy Company, Indianapolis, Ind. Homcoline Feed ----- | 3929 | 5.0 | 17.0 | 7.0 | | Corn germ meal |
| American Milling Company, Peoria, Ill. Amco Corn Germ Meal ----- | 8907 | 7.0 | 15.5 | 9.0 | | Corn germ meal |
| Atlas Feed & Milling Company, Peoria, Ill. Atlas Corn Oil Meal ----- | 8400 | 7.0 | 18.0 | 9.0 | | Corn germ meal |
| Bartlett Company, J. E., Jackson, Mich. Corn Germ Meal ----- | 9340 | 5.0 | 17.0 | 7.0 | | Corn germ meal |
| Chicago Heights Oil Mfg. Co., Chicago, Ill. Heights Corn Oil Cake Meal ----- | 8885 | 8.0 | 18.0 | 10.0 | | Corn germ meal |
| Clinton Sugar Refining Company, Clinton, Iowa Clinton Corn Germ Meal ----- | 6788 | 7.0 | 20.0 | 12.0 | | Corn germ meal |
| Continental Cereal Company, Peoria, Ill. Continental Corn Germ Meal ----- | 8667 | 7.0 | 18.0 | 9.0 | | Corn germ meal |
| Corn Products Refining Company, New York, N. Y. Diamond Hog Meal ----- Argo Corn Oil Cake Meal ----- | 7478 7720 | 7.0 7.0 | 18.0 18.0 | 13.0 12.0 | | Corn germ meal Corn germ meal |
| Dewey Bros. Company, The, Blanchester, Ohio Corn Germ Oil Meal ----- | 8662 | 6.0 | 20.0 | 10.0 | | Corn germ meal |
| Eberts Grain Company, Nabb, Ind. Eberts Corn Germ Meal ----- | 4555 | 8.0 | 18.0 | 9.0 | | Corn germ meal |
| Hubinger Bros. Company, J. C., Keokuk, Iowa Corn Germ Oil Meal ----- | 8921 | 9.0 | 22.0 | 8.0 | | Corn germ meal |
| Hurst & Company, Indianapolis, Ind. Corn Oil Cake Meal ----- | 8528 | 7.0 | 18.0 | 3.0 | | Corn germ meal |
| McCoy & Garten, Indianapolis, Ind. Yellow Corn Germ Meal ----- White Corn Germ Meal ----- | 6429 7220 | 8.0 6.0 | 18.0 19.0 | 9.0 4.5 | | Corn hearts with part of the oil extracted Corn hearts with part of the oil extracted |
| Pearson, W. W., Upland, Ind. Pearson's Meal ----- | 7702 | 7.0 | 18.0 | 10.0 | | Corn germ meal |
| Piel Bros. Starch Company, Indianapolis, Ind. P. Bro. Corn Oil Cake ----- | 7910 | 10.0 | 15.0 | 10.0 | | Corn germ meal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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| Pincoffs Company, Maurice, Chicago, Ill. Pincos Brand Yellow Corn Germ Meal ----- | 6729 | 8.0 | 20.0 | 10.0 | | Corn germ meal |
| Semans Edible Oils Company, Indianapolis, Ind. "Germena" Germ Oil Meal ----- | 8539 | 6.0 | 18.0 | 5.0 | | Corn germ meal |
| Sunco Meal ----- | 8957 | 7.0 | 19.0 | 19.0 | | Corn germ oil meal, sunflower oil cake meal |
| "Indiana" Corn Germ Meal ----- | 9003 | 7.0 | 18.0 | 9.0 | | Corn germ meal |
| Simpson, Orval, Chicago, Ill. Simpson's Corn Oilcake Meal ----- | 8664 | 9.0 | 21.0 | 8.0 | | Corn germ meal |
| Union Starch & Refining Company, Edinburg, Ind. Union Corn Germ Meal ----- | 2237 | 8.0 | 18.0 | 9.0 | | Corn germ meal |
| CORN GERM MEAL AND CORN DISTILLERS' DRIED GRAINS | | | | | | |
| Semans Edible Oils Company, Indianapolis, Ind. Maizmeal ----- | 8240 | 8.0 | 25.0 | 8.0 | | Corn germ meal, corn distillers dried grains |
| HOMINY MEALS, FEED AND CHOPS | | | | | | |
| American Hominy Company, Indianapolis, Ind. Homeo Hominy Feed ----- | 9333 | 5.0 | 9.0 | 7.0 | | Corn product |
| Amo Mill & Elevator Company, Amo, Ind. Amo Hominy Feed ----- | 5778 | 7.0 | 10.0 | 7.0 | | Corn product |
| Amo Mill & Elevator Company, Bargersville, Ind. Amo Hominy Feed ----- | 8724 | 7.0 | 10.0 | 7.0 | | Corn product |
| Aunt Jemima Mills Company, St. Joseph, Mo. Hominy Feed ----- | 6254 | 6.0 | 11.0 | 9.0 | | Corn product |
| Badenoch Company, J. J., Chicago, Ill. That Snowflake Fine White Hominy Feed---- | 8620 | 7.0 | 10.0 | 4.0 | | Corn product |
| Ballard Corn Mills, Louisville, Ky. Hominy Meal ----- | 9155 | 7.5 | 10.5 | 5.9 | | Corn product |
| Beatrice Corn Mills, Lincoln, Neb. Hominy Feed ----- | 3719 | 8.0 | 10.0 | 4.5 | | Corn product |
| Bishopp Hominy Company, Sheldon, Ill. Pure Corn Hominy Feed ----- | 4982 | 5.0 | 8.0 | 5.0 | | Corn product |
| Blair Milling Company, The, Atchison, Kansas Blair's Hominy Feed ----- | 6154 | 6.5 | 9.0 | 7.0 | | Corn product |
| Cereal Mills Company, Wausau, Wis. Hominy Feed ----- | 7653 | 8.5 | 11.2 | 4.0 | | Corn product from manufacture of hominy grits |
| Chicago Heights Oil Mfg. Company, Chicago, Ill. "Prize" White Hominy Feed ----- | 6732 | 7.0 | 9.0 | 10.0 | | Corn product |
| Cincinnati Grain & Hay Company, Cincinnati, Ohio Hominy Meal ----- | 7839 | 8.4 | 11.0 | 7.5 | | Corn product |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. Hominy Feed ----- | 4516 | 7.5 | 10.0 | 6.0 | | Corn product |
| Deutsch & Sickert Company, Milwaukee, Wis. Success Hominy Feed ----- | 6071 | 6.0 | 9.0 | 6.0 | | Corn product |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Dickinson Company, The Albert, Chicago, Ill. Hominy Feed Meal ----- | 3160 | 6.0 | 9.0 | 5.0 | | Corn product |
| A. D. Co. Hominy Feed ----- | 8853 | 6.0 | 10.0 | 5.0 | | Corn product |
| Eagle Roller Mill Company, New Ulm, Minn. Hominy Feed ----- | 6966 | 7.0 | 10.6 | 6.0 | | Hominy feed |
| Early & Daniel Company, The, Cincinnati, O. Hominy Meal ----- | 8338 | 6.0 | 9.0 | 9.0 | | Corn product |
| Eberts Grain Company, Nabb, Ind. Eberts Grain Co. Hominy Meal ----- | 9423 | 6.5 | 10.0 | 5.5 | | Corn product |
| Edinger & Company, Louisville, Ky. Arrow Hominy Feed ----- | 7766 | 6.7 | 10.2 | 5.5 | | Corn product |
| Elevator Milling Company, Springfield, Ill. Hominy Feed ----- | 2514 | 7.5 | 10.0 | 3.8 | | Corn product |
| Emison & Company, J. & S., (Baltic Mills) Vincennes, Ind. Hominy Feed ----- | 8046 | 7.0 | 8.0 | 6.0 | | Corn product |
| Evans Milling Company, The, Indianapolis, Ind. Hominy Feed ----- | 20 | 7.5 | 10.0 | 5.0 | | Corn product |
| Ewing Mill Company, Brownstown, Ind. Hominy Meal ----- | 296 | 7.5 | 9.0 | 6.0 | | Corn product |
| Farmers Hominy Mill, Seymour, Ind. Farmers Hominy Feed ----- | 8296 | 7.5 | 10.0 | 3.0 | | Corn product |
| Ferger Grain Company, The, Cincinnati, Ohio Nutritia Hominy Meal ----- | 8605 | 7.8 | 10.7 | 7.0 | | Corn product |
| Fisher Bros., Evansville, Ind. Diamond Hominy Feed ----- | 8737 | 6.0 | 10.0 | 7.0 | | Corn product |
| Gienger & Company, John, Jeffersonville, Ind. Hominy Feed ----- | 1887 | 7.0 | 9.0 | 5.0 | | Corn product |
| Hall Milling Company, W. C., Brazil, Ind. Hall's Hominy Feed ----- | 7482 | 5.0 | 9.5 | 6.0 | | Corn product |
| Hartman & Sons, Louis, New Albany, Ind. "A" Hominy Feed ----- | 2021 | 7.0 | 8.0 | 9.0 | | Corn product |
| Hayes Grain & Commission Company, Chicago, Ill. Hayes Brand Hominy Feed ----- | 9257 | 5.0 | 9.0 | 15.0 | | Corn product |
| Huffstetter & Gray, Nabb, Ind. Hominy Feed ----- | 6828 | 1.5 | 10.0 | 5.0 | | Corn product |
| Hunter & Company, O. L., Chicago, Ill. Calumet Hominy Feed ----- | 4417 | 7.0 | 8.5 | 10.0 | | Corn product |
| Hunter-Robinson-Wenz Milling Company, St. Louis, Mo. Capital White Hominy Feed ----- | 3921 | 7.7 | 11.0 | 8.5 | | Corn product |
| Kern & Sons, John B. A., Milwaukee, Wis. Eagle Hominy Feed ----- | 7419 | 6.5 | 10.5 | 4.0 | | Corn product |
| Kidder & Company, F. L., Paris, Ill. Peerless Hominy Feed ----- | 2449 | 7.5 | 8.5 | 4.5 | | Corn product |
| Krause Milling Company, Chas. A., Milwaukee, Wis. Badger Hominy Feed ----- | 5101 | 6.0 | 10.0 | 5.0 | | Corn product |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Kuhn & Company, Paul, Terre Haute, Ind. Hominy Feed ----- | 2735 | 7.7 | 10.0 | 5.0 | | Corn product |
| Lafayette Corn Flour Mills, Lafayette, Ind. Lafayette Hominy Feed ----- | 9272 | 7.0 | 10.0 | 6.5 | | Corn product |
| Louisville Cereal Mill Company, Louisville, Ky. Hominy Meal ----- | 2020 | 7.0 | 9.0 | 9.0 | | Corn product |
| Masten, Clarence H., Amo, Ind. Hominy Feed ----- | 6853 | 7.0 | 9.3 | 10.0 | | Corn product |
| Mead Johnson Company, Evansville, Ind. Mead's Hominy Feed ----- | 7700 | 6.0 | 10.0 | 5.0 | | Corn product |
| Merchants Hay & Grain Company, Indianapolis, Ind. Hominy Feed ----- | 4394 | 6.0 | 9.0 | 5.0 | | Corn product |
| McCoy & Garten, Indianapolis, Ind. Hominy Feed ----- | 7761 | 6.0 | 10.0 | 10.0 | | Corn product |
| National Feed Company, St. Louis, Mo. "Hominy Feed" ----- | 3020 | 7.0 | 10.0 | 10.0 | | Corn product |
| Nebraska Corn Mills, Lincoln, Neb. Hominy Feed ----- | 5984 | 7.0 | 8.0 | 5.0 | | Corn product |
| Noblesville Milling Company, Noblesville, Ind. Hominy Chop ----- | 3309 | 3.5 | 9.5 | 8.0 | | Corn product |
| Perin Bros., Cincinnati, Ohio Hominy Feed ----- | 8721 | 7.0 | 10.0 | 6.0 | | Corn product |
| Pfeffer Milling Company, Lebanon, Ill. Pfeffer Milling Co. Hominy Feed ----- | 2617 | 8.0 | 10.0 | 3.7 | | Corn product |
| Pinecoffs Company, Maurice, Chicago, Ill. Pineco Brand White Hominy Feed ----- | 6584 | 7.0 | 8.5 | 10.0 | | Corn product |
| Prater-Mottier Company, Terre Haute, Ind. Praters Hominy Feed ----- | 7647 | 7.0 | 9.5 | 6.0 | | Corn product |
| Raidt Milling Company, F., Louisville, Ky. Hominy Meal ----- | 1920 | 6.0 | 8.0 | 7.0 | | Corn product |
| Ruoff, Geo. D., Osgood, Ind. Hominy Feed ----- | 4400 | 7.0 | 9.0 | 7.0 | | Corn product |
| Semans Edible Oils Company, Indianapolis, Ind. "Indiana" Hominy Feed ----- | 9004 | 6.0 | 10.0 | 6.0 | | Corn product |
| Shields & Blish, Sardinia, Ind. Colonial Hominy Feed ----- | 9323 | 7.0 | 8.0 | 7.0 | | Corn product |
| Shotwell & Company, Chas. A., Indianapolis, Ind. Blair's Hominy Feed ----- | 4420 | 6.0 | 9.0 | 6.0 | | Corn product |
| Stiefel & Levy, Fort Wayne, Ind. Hominy Feed ----- | 7866 | 6.5 | 9.0 | 7.0 | | Corn product |
| Suckow Company, Franklin, Ind. "Perfection" Hominy Feed ----- | 5945 | 7.5 | 10.0 | 7.0 | | Corn product |
| Suffern-Hunt Mills, Decatur, Ill. Acme Hominy Feed ----- | 9377 | 6.0 | 9.0 | 7.0 | | Corn product |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| DRIED BEET PULP | | | | | |
| Larowe Milling Company, Detroit, Mich. Dried Beet Pulp ----- | 2709 | 0.5 | 8.0 | 20.0 | Dried beet pulp |
| Small & Company, W. H., Evansville, Ind. Dried Beet Pulp ----- | 3968 | 0.5 | 8.0 | 20.0 | Dried beet pulp |
| DRIED BUTTERMILK | | | | | |
| Hales & Edwards Company, Chicago, Ill. Eatall Dried Buttermilk ----- | 9293 | 7.0 | 25.0 | ---- | Dried buttermilk |
| ALFALFA MEAL | | | | | |
| Alfalfa Products Company, The, Fremont, Neb. Alfalfa Meal ----- | 2951 | 0.8 | 10.0 | 20.0 | Ground alfalfa hay |
| American Milling Company, Peoria, Ill. Amco Alfalfa Meal ----- | 5390 | 2.0 | 13.0 | 30.0 | Ground alfalfa hay |
| Badenoch Company, J. J., Chicago, Ill. Alfalfa Meal ----- | 6535 | 1.0 | 13.0 | 30.0 | Ground alfalfa hay |
| Cyphers Incubator Company, Chicago, Ill. Alfalfa Meal ----- | 7636 | 1.0 | 12.0 | 32.0 | Ground alfalfa hay |
| Denver Alfalfa Milling & Products Company, Hartman, Colo. Alfalfa Meal ----- | 7576 | 1.5 | 12.0 | 35.0 | Ground alfalfa hay |
| Dickinson Company, The Albert, Chicago, Ill. Alfalfa Meal ----- | 2816 | 1.0 | 12.0 | 30.0 | Ground alfalfa hay |
| Dixie Mills Company, East St. Louis, Ill. Alfalfa Meal ----- | 5392 | 1.0 | 13.0 | 30.0 | Ground alfalfa hay |
| Edinger & Company, Louisville, Ky. Arrow Alfalfa Meal ----- | 8300 | 1.0 | 12.0 | 35.0 | Ground alfalfa hay |
| Emison & Company, J. & S., (Baltic Mills) Vincennes, Ind. Alfalfa Meal ----- | 5491 | 1.5 | 12.0 | 30.0 | Ground alfalfa hay |
| Fairplay Feed Mills, Linton, Ind. Fairplay Green Feed ----- | 6502 | 1.0 | 12.0 | 30.0 | Ground alfalfa hay |
| Golden Grain Milling Company, . East St. Louis, Ill. Golden Grain Alfalfa Meal ----- | 6291 | 1.5 | 14.0 | 30.0 | Ground alfalfa hay |
| Grain Belt Mills Company, South St. Joseph, Mo. Grain Belt Brand Alfalfa Meal ----- | 8777 | 0.5 | 12.0 | 33.0 | Ground alfalfa hay |
| Hales & Edwards Company, Chicago, Ill. Red Comb Alfalfa Meal ----- | 8120 | 1.0 | 13.5 | 35.0 | Ground alfalfa hay |
| Hanks Company, The Howard H., Chicago, Ill. Golden Egg Alfalfa Meal ----- | 5321 | 1.0 | 13.5 | 30.0 | Ground alfalfa hay |
| Haywood Alfalfa Warehouse Company, The, Kansas City, Mo. Alfalfa Meal ----- | 5676 | 1.0 | 12.0 | 35.0 | Ground alfalfa hay |
| Hurst & Company, Indianapolis, Ind. Alfalfa Meal ----- | 8484 | 1.5 | 12.0 | 31.0 | Ground alfalfa hay |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Kornfalfa Feed Milling Company, Kansas City, Mo. Pioneer Alfalfa Meal ----- | 3727 | 1.5 | 12.0 | 35.0 | | Ground alfalfa hay |
| Krause Milling Company, Chas. A., Milwaukee, Wis. Alfalfa Meal ----- | 7330 | 1.0 | 14.0 | 30.0 | | Ground alfalfa hay |
| McCoy & Garten, Indianapolis, Ind. Alfalfa Meal ----- | 8079 | 0.5 | 12.0 | 30.0 | | Ground alfalfa hay |
| National Feed Company, St. Louis, Mo. Pure Alfalfa Meal ----- | 4720 | 1.2 | 13.5 | 33.0 | | Ground alfalfa hay |
| Omaha Alfalfa Milling Company, Omaha, Neb. Alfalfa Meal ----- | 8980 | 1.0 | 12.0 | 35.0 | | Ground alfalfa hay |
| Peters Mill Company, M. C., Omaha, Neb. "Lucern" ----- | 3470 | 0.5 | 12.0 | 33.0 | | Ground alfalfa hay |
| Potwin Pure Alfalfa Meal Company, Potwin, Kansas Alfalfa Meal ----- | 2111 | 1.5 | 14.0 | 15.0 | | Alfalfa products |
| Purina Mills, Branch Ralston Purina Company, St. Louis, Mo. Purina Alfalfa Meal ----- | 7352 | 1.5 | 14.0 | 29.0 | | Ground alfalfa hay |
| Quaker Oats Company, The, Chicago, Ill. Alfalfa Meal ----- | 7689 | 1.5 | 14.0 | 25.0 | | Ground alfalfa hay |
| Rapier Grain & Seed Company, Owensboro, Ky. Alfalfa Meal ----- | 8297 | 1.5 | 12.0 | 28.0 | | Ground alfalfa hay |
| Small & Company, W. H., Evansville, Ind. Alfalfa Meal ----- | 4177 | 1.5 | 13.5 | 32.0 | | Ground alfalfa hay |
| Southern Seed Company, Louisville, Ky. Atlas Alfalfa Meal ----- | 3569 | 1.7 | 15.0 | 28.0 | | Ground alfalfa hay |
| Union Grain & Feed Company, The, Anderson, Ind. Union Alfalfa Meal ----- | 8435 | 1.0 | 12.0 | 30.0 | | Ground alfalfa hay |
| United States Stock Food Company, Kansas City, Mo. Alfalfa Meal ----- | 6354 | 1.2 | 10.0 | 30.0 | | Ground alfalfa hay |
| Wash-Co Alfalfa Mixed Feed & Milling Com- pany, Fort Calhoun, Neb. Wash-Co Alfalfa Meal ----- | 5477 | 0.5 | 12.0 | 35.0 | | Ground alfalfa hay |
| Wichita Alfalfa Stock Food Company, The, Wichita, Kansas Wichita Pure Alfalfa Meal ----- | 3032 | 2.0 | 12.5 | 30.0 | | Alfalfa product |
| ANIMAL BY-PRODUCTS | | | | | | |
| Adams, S. O., Lynn, Ind. My Choice Feeding Tankage ----- | 8097 | 5.0 | 50.0 | ---- | | Meat, blood, bone |
| Albany Tanning Company, The, Albany, Ind. Feeding Tankage ----- | 7332 | 5.0 | 40.0 | ---- | | Meat, blood, bone |
| American Agricultural Chemical Company, The, New York, N. Y. Pure Ground Meat Scraps ----- | 8105 | 10.0 | 55.0 | ---- | | Meat product |
| Ground Meat Scraps ----- | 8106 | 10.0 | 45.0 | ---- | | Meat product |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Anderson Fertilizer Company, Anderson, Ind. Phillip's Feeding Tankage | 8387 | 8.0 | 36.0 | 5.0 | Meat, blood, bone, intestinal offal |
| Angola Reduction Company, Angola, Ind. Tankage | 5358 | 8.0 | 40.0 | 2.2 | Meat product |
| Armour Fertilizer Works, Chicago, Ill. Armour's Blood Meal | 4792 | --- | 80.0 | 2.0 | Dried blood |
| Armour's Meat Meal | 6263 | 6.0 | 60.0 | 2.0 | Meat residues |
| Ballard Packing Company, Marion, Ind. Feeding Tankage | 5682 | 8.0 | 36.0 | --- | Meat, blood and bone |
| Barnhard Fertilizer Company, Lafayette, Ind. Feeding Tankage | 8932 | 10.0 | 45.0 | 5.0 | Meat, blood, bone, stomach offal |
| Becker, Gustave, Peru, Ind. Becker's Tankage | 9346 | 15.0 | 45.0 | 3.0 | Meat, blood, bone, intestinal offal |
| B. & L. Manufacturing Company, Rensselaer, Ind. Feeding Tankage | 8398 | 11.0 | 40.0 | 25.0 | Meat, blood, bone |
| Blue River Reduction Company, Edinburg, Ind. Feeding Tankage | 7488 | 16.0 | 40.0 | 6.0 | Meat, blood, bone |
| Brook Flour & Feed Mill, Brook, Ind. Rising Sun Brand Digester Tankage | 8221 | 5.0 | 60.0 | 5.0 | Meat, blood, bone |
| Brown Brothers, Indianapolis, Ind. "Circle B" (B) | 8502 | 9.0 | 40.0 | --- | Meat, blood, bone |
| Buhner Fertilizer Company, Seymour, Ind. Buhner's Feeding Tankage | 8671 | 8.0 | 45.0 | --- | Meat, blood, bone |
| Caldwell Tanking Company, Muncie, Ind. Feeding Tankage | 9172 | 8.0 | 50.0 | --- | Meat, blood, bone |
| Cavanaugh Packing Company, Muncie, Ind. Feeding Tankage | 7734 | 6.0 | 30.0 | --- | Meat, blood, bone |
| Butler & Company, Edw. J., Chicago, Ill. Butlers Premium Digester Tankage | 7990 | 6.0 | 60.0 | 5.0 | Meat residue, blood, bone |
| Chicago Feed & Fertilizer Company, Chicago, Ill. Magic Brand Meat Scrap | 8621 | 5.0 | 50.0 | 3.0 | Meat, blood, bone |
| Magic Brand Digester Tankage | 8880 | 2.0 | 60.0 | 3.0 | Meat, blood, bone |
| Clendenin & Company, Richmond, Ind. Feeding Tankage | 2132 | 13.0 | 45.0 | --- | Meat product |
| Clinton Manufacturing Company, Frankfort, Ind. C. M. C. Meat and Bone Meal | 5547 | 12.0 | 45.0 | --- | Meat and bone product |
| Clinton Tankage | 9175 | 10.0 | 40.0 | 3.0 | Meat, blood, bone, stomach offal |
| Columbus Sanitary Reduction Company, Columbus, Ind. Feeding Tankage | 8182 | 15.0 | 45.0 | --- | Meat, blood, bone |
| Connelly, Clare, Judson, Ind. Tankage | 6364 | 6.0 | 38.0 | --- | Meat, blood, bone |
| Cyphers Incubator Company, Buffalo, N. Y. Beef Scrap | 4271 | 10.0 | 45.0 | --- | Meat product |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Darling & Company, Chicago, Ill. | | | | | | |
| Darling's 60% Digester Tankage ----- | 4734 | 0.5 | 60.0 | 3.0 | Meat product | |
| Darling's Meat Crisps ----- | 5433 | 0.5 | 75.0 | 3.0 | Meat product | |
| Darling's Granulated Bone ----- | 5853 | 0.5 | 20.0 | 3.0 | Bone product | |
| Darling's Blood Meal ----- | 6309 | --- | 80.0 | --- | Dried blood | |
| Darling's Meat Scraps ----- | 9077 | 0.5 | 50.0 | 3.0 | Meat products | |
| Meat Scraps and Sand ----- | 9250 | 0.5 | 50.0 | 3.0 | Meat residue, less than 2½% sand | |
| Daudistel, Henry, Evansville, Ind. | | | | | | |
| Feeding Tankage ----- | 8599 | 8.0 | 40.0 | --- | Meat, blood, bone | |
| Decatur Fertilizer Company, Decatur, R. R. 1, Ind. | | | | | | |
| Tankage ----- | 7438 | 7.0 | 35.0 | 9.0 | Meat, blood, bone, intestinal offal | |
| De Kalb Tanking Company, Auburn Junction, Ind. | | | | | | |
| Feeding Tankage ----- | 8938 | 8.0 | 25.0 | 8.0 | Meat, blood, bone, intestinal offal | |
| Delphi Fertilizer Company, The, Delphi, Ind. | | | | | | |
| Feeding Tankage ----- | 8052 | 12.0 | 35.0 | 1.8 | Meat, blood, bone, intestinal offal | |
| Dewey Bros. Company, The, Blanchester, Ohio | | | | | | |
| Dewey's Digester Tankage ----- | 7152 | 8.0 | 60.0 | 3.0 | Meat residues containing 6% phosphates | |
| Dold Packing Company, Jacob, Buffalo, N. Y. | | | | | | |
| Dold Quality Poultry Bone ----- | 4017 | 5.0 | 24.0 | --- | Bones containing 55% phosphates | |
| Dold Quality Digester Tankage ----- | 4018 | 10.0 | 32.0 | 3.0 | Meat product | |
| Dold Quality Meat Meal ----- | 4019 | 10.0 | 60.0 | 3.0 | Meat product | |
| Dryfus Packing & Provision Company, Lafayette, Ind. | | | | | | |
| Feeding Tankage ----- | 7322 | 10.0 | 30.0 | --- | Meat, blood, bone | |
| Early & Daniel Company, The, Cincinnati, Ohio | | | | | | |
| Digester Tankage ----- | 8498 | --- | 50.0 | --- | Meat residues | |
| Eckart Packing Company, Fred, Fort Wayne, Ind. | | | | | | |
| Eckart's Feeding Tankage ----- | 0055 | 9.0 | 28.0 | 5.0 | Meat, blood, bone | |
| Elkhart Fertilizer Company, Elkhart, Ind. ⁴⁷ | | | | | | |
| Feeding Tankage ----- | 6504 | 8.0 | 44.0 | 7.0 | Meat, blood, bone | |
| Emge & Sons, Peter, Fort Branch, Ind. | | | | | | |
| Feeding Tankage ----- | 7749 | 10.0 | 25.0 | 4.0 | Meat, blood, bone, intestinal offal | |
| Evansville Packing Company, The, Evansville, Ind. | | | | | | |
| 60% "Feeding Tankage" ----- | 8298 | 8.0 | 60.0 | 3.0 | Meat, blood, bone | |
| Flora Fertilizer Plant, Flora, Ind. | | | | | | |
| Feeding Tankage ----- | 7815 | 12.0 | 35.0 | --- | Meat, blood, bone, stomach offal | |
| Fortville Rendering Plant, Fortville, Ind. | | | | | | |
| Feeding Tankage ----- | 8613 | 14.0 | 65.0 | 1.0 | Meat, blood, bone | |
| Fountain Fertilizer Company, Veedersburg, Ind. | | | | | | |
| Fountain Brand Tankage ----- | 9322 | 6.0 | 38.0 | --- | Meat, blood, bone | |
| Goeke Company, Edward F., Evansville, Ind. | | | | | | |
| Feeding Tankage ----- | 9082 | 8.0 | 33.0 | --- | Meat, blood, bone, stomach offal | |
| Goldreich Fertilizer Company, Marion, Ind. | | | | | | |
| "Feeding Tankage" ----- | 9138 | 10.0 | 40.0 | 3.0 | Meat, blood, bone, intestinal offal | |

⁴⁷ Succeeded by Elkhart County Fertilizer Co., Wakarusa

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Hammond Standish & Company, Detroit, Mich. "Digesto" ----- | 9285 | 3.0 | 60.0 | 3.0 | Blood meal, meat scraps, bones, concentrated tankage | |
| Hancock Fertilizer Company, The, Greenfield, Ind. Feeding Tankage ----- | 7659 | 6.0 | 40.0 | 4.0 | Meat, blood, bone | |
| Hartman & Dotterer, Bluffton, Ind. Digester Tankage ----- | 9409 | 5.4 | 58.0 | 3.0 | Meat, blood, bone | |
| Heppe & Sons Company, Wm., Logansport, Ind. Feeding Tankage ----- | 7590 | 7.0 | 45.0 | --- | Meat, blood, bone | |
| Hine Bros. Company, Chicago, Ill. Meat & Bone ----- | 4280 | 8.0 | 40.0 | --- | Meat scraps, bone | |
| Beef Scraps ----- | 4281 | 8.0 | 50.0 | --- | Meat product | |
| Poultry Bone ----- | 4519 | --- | 25.0 | --- | Raw bones containing 55% phosphates | |
| Home Packing & Ice Company, Terre Haute, Ind. Digester Meat & Bone Tankage ----- | 7450 | 10.0 | 32.0 | --- | Meat, blood, bone | |
| Hoosier Packing Company, The, Decatur, Ind. Feeding Tankage ----- | 7992 | 8.0 | 28.0 | 5.0 | Meat, blood, bone, intestinal offal | |
| Hopkins Fertilizer Company, New Albany, Ind. Poultry Bone ----- | 3643 | --- | 20.0 | --- | Bone product | |
| Hughes-Curry Packing Company, Anderson, Ind. Feeding Tankage ----- | 7374 | 8.0 | 40.0 | 3.0 | Meat, blood, bone | |
| Huntington Fertilizer Company, Huntington, Ind. Farmers Commercial Feeding Tankage ----- | 8875 | 15.0 | 40.0 | --- | Meat, blood, bone | |
| Ideal Rendering Company, North Wales, Pa. Ideal Meat Scraps ----- | 8962 | 14.0 | 55.0 | 2.0 | Meat, blood, bone | |
| Independent Feed & Fertilizer Company, Indianapolis, Ind. Clover Leaf Digester Tankage ----- | 7553 | 6.0 | 60.0 | 3.0 | Meat, blood, bone | |
| Digester Tankage, Clover Leaf ----- | 8503 | 6.0 | 60.0 | 3.0 | Meat, blood, bone | |
| Superior Tankage ----- | 8504 | 9.0 | 40.0 | --- | Meat, blood, bone | |
| International Glue Company, Boston, Mass. Red Star Brand Fish Scrap ----- | 7166 | 2.0 | 45.0 | 1.0 | Ground fish scrap | |
| Interstate Rendering Company, Chicago, Ill. Animal Tankage ----- | 8930 | 4.0 | 40.0 | --- | Meat, blood, bone, stomach and intestinal offal | |
| Joslin-Schmidt Company, The, Cincinnati, Ohio "Abattoir Brand" Poultry Bone ----- | 6792 | 2.0 | 25.0 | 3.0 | Bones containing 55% phosphates | |
| Abattoir Brand-Digester Tankage ----- | 8615 | 1.0 | 60.0 | 3.0 | Meat product | |
| Abattoir Brand-Meat Scraps ----- | 8616 | 1.0 | 55.0 | 3.0 | Meat product | |
| Kendallville Fertilizer Company, Kendallville, Ind. Tankage ----- | 8808 | 7.0 | 50.0 | 1.0 | Meat, blood, bone | |
| Kenney Bros. Reduction Company, Lowell, Ind. Tankage ----- | 7192 | 11.0 | 44.0 | --- | Meat, blood and bone products | |
| Kingan & Company, Ltd., Indianapolis, Ind. Kingan's Digester Tankage ----- | 8574 | 6.0 | 60.0 | 6.0 | Meat residue, evaporated tank water | |
| Kingan's Digester Tankage "Marion Brand" ----- | 8886 | 6.0 | 50.0 | 5.0 | Meat residue, evaporated tank water | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------------------------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Kramer, Harry A., Rushville, Ind. Tankage ----- | 8779 | 9.3 | 23.4 | 5.0 | | Meat and bone tankage, stomach offal |
| Kuhner Packing Company, Muncie, Ind. Kuhner's Tankage ----- | 8464 | 5.0 | 30.0 | 4.0 | | Meat, blood, bone, stomach offal |
| Lebanon Reduction Company, Indianapolis, Ind. Feeding Tankage ----- | 9011 | 10.0 | 42.0 | 6.0 | | Meat, blood, bone, intestinal offal |
| Maher Cold Storage, J. F., Richmond, Ind. Feeding Tankage ----- | 8552 | 5.0 | 28.0 | 3.0 | | Meat, blood, bone |
| Major Bros. Packing Company, Mishawaka, Ind. Blood Meal ----- | 1971 | 1.0 | 55.0 | 5.0 | | Dried blood |
| Manns' Fertilizer Works, North Manchester, Ind. Manns' Feeding Tankage ----- | 7062 | 15.0 | 45.0 | ---- | | Meat, blood, bone |
| Meier Packing Company, Indianapolis, Ind. Feeding Tankage ----- | 9224 | 5.0 | 28.0 | 6.0 | | Meat, blood, bone, stomach offal, not over 2% sand |
| Mitchell & Mitchell, Martinsville, R. R. 9, Ind. Feeding Tankage ----- | 8849 | 7.0 | 30.0 | 5.0 | | Meat, blood, bone, intestinal offal |
| Monroe Tanking Company, Bloomington, Ind. Monroe Tankage ----- | 8909 | 15.0 | 45.0 | ---- | | Meat, blood, bone |
| Monticello Fertilizer Company, Monticello, Ind. Feeding Tankage ----- | 9063 | 10.0 | 40.0 | 8.0 | | Meat, blood, bone, stomach offal |
| Montpelier Fertilizer Company, Huntington, Ind. Farmers Commercial Feeding Tankage ----- | 5766 | 24.0 | 49.0 | 3.0 | | Meat, blood, bone |
| Morris & Company, Chicago, Ill. Big Brand 40% Digester Tankage ----- Big Brand Poultry Bone ----- | 4223 6816 | 8.0 ---- | 40.0 23.0 | 5.0 ---- | | Meat product Bone product containing 55% phosphates |
| Big Brand Meat Scraps ----- Big Brand Meat Meal ----- Big Sixty Meat Meal Digester Tankage ----- Big Fifty Meat Meal Digester Tankage ----- Big Thirty Feeding Tankage ----- | 6905 6906 8155 9198 9229 | 7.0 7.0 6.0 6.0 3.0 | 55.0 50.0 60.0 50.0 30.0 | 5.0 5.0 5.0 5.0 10.0 | | Meat residue Meat residue Meat product Meat product Meat, blood, bone, intestinal offal |
| Muncie Tanking Company, Muncie, Ind. Feeding Tankage ----- | 8428 | 10.0 | 50.0 | ---- | | Meat, blood, bone |
| McCoy & Garten, Indianapolis, Ind. McCoys Choice Hog Digester Tankage ----- McCoys Fancy Beef Scraps ----- Fancy Meat & Bone ----- | 5223 5312 8463 | ---- 6.0 8.0 | 60.0 50.0 42.0 | ---- ---- ---- | | Meat product Meat product Meat and bone product |
| McKenzie & Company, J. H., Brazil, R. R. 8, Ind. Tankage ----- | 8238 | 8.0 | 55.0 | 2.0 | | Meat, blood, bone |
| New Castle Tanking Company, New Castle, Ind. Feeding Tankage ----- | 8965 | 10.0 | 40.0 | 8.0 | | Meat, blood, bone, intestinal offal |
| Newton County Reduction Plant, Kentland, Ind. Pendergrass Hog Tankage ----- | 8554 | 8.0 | 38.0 | 10.0 | | Meat, blood, bone, intestinal offal |
| North Manchester Fertilizer Company, North Manchester, Ind. Mann's Digester Feeding Tankage ----- | 9270 | 15.0 | 45.0 | ---- | | Meat, blood, bone |

Brands Certified by Manufacturers as Being on Sale, May 1, 1913 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Odon Reduction Company, Odon, Ind. Tankage ----- | 8575 | 12.0 | 40.0 | ---- | | Meat, blood, bone, intestinal offal |
| Pearl Packing House, The, Madison, Ind. The Pearl Brand ----- | 5015 | 5.0 | 37.0 | 3.0 | | Meat, blood, bone |
| Pitman, H. E., Bedford, Ind. Meat Scraps and less than 2% Sand ----- | 9057 | 5.0 | 55.0 | 3.0 | | Meat, blood, bone, less than 2% sand |
| Tankage ----- | 9068 | 0.5 | 60.0 | 3.0 | | Meat, blood, bone, stomach offal, less than 2% sand |
| Portland Fertilizer Plant, Portland, Ind. Black's Tankage ----- | 7887 | 7.0 | 40.0 | 9.0 | | Meat, blood, bone, intestinal offal |
| Price, L., Converse, Ind. Feeding Tankage ----- | 4906 | 10.0 | 45.0 | 5.0 | | Meat, bone and blood products |
| Rauh & Sons Animal Feed Company, E., Indianapolis, Ind. Rauh's Meat Scraps for Poultry ----- | 7246 | ---- | 50.0 | ---- | | Meat product |
| Rauh's Digester Tankage for Hogs ----- | 7308 | ---- | 60.0 | ---- | | Meat product |
| Rauh's Digester Tankage ----- | 7518 | ---- | 50.0 | ---- | | Meat product |
| Rauh's Meat Meal ----- | 8068 | ---- | 80.0 | ---- | | Meat product |
| Meatall ----- | 8086 | ---- | 65.0 | ---- | | Meat product |
| Meatone ----- | 8087 | ---- | 50.0 | ---- | | Meat product |
| Meat Flakes ----- | 8289 | ---- | 75.0 | ---- | | Meat product |
| Meato ----- | 8290 | ---- | 75.0 | ---- | | Meat product |
| Meatone Tankage for Hogs ----- | 9286 | ---- | 50.0 | ---- | | Meat, blood, bone, containing some sand, stomach offal |
| Meato Scraps for Poultry ----- | 9287 | ---- | 50.0 | ---- | | Meat scraps, bone, containing some sand, stomach offal |
| 60% Digestall Tankage ----- | 9431 | ---- | 60.0 | ---- | | Meat, blood, bone, containing some sand, stomach offal |
| Roberts, Robert A., Greensburg, Ind. Feeding Tankage ----- | 5602 | 5.0 | 20.0 | 3.0 | | Meat, blood, bone |
| Roby Bros., Winchester, R. R. 4, Ind. Roby Bros. Feeding Tankage ----- | 7552 | 17.0 | 40.0 | 2.6 | | Meat, blood, bone |
| Rochester Fertilizer & Tankage Company, ⁴⁸ Rochester, Ind. Pure Tankage ----- | 8196 | 10.0 | 50.0 | ---- | | Meat, blood, bone |
| Feeding Tankage ----- | 9010 | 7.0 | 50.0 | 3.0 | | Meat, blood, bone |
| Routh & Company, W. C., Logansport, Ind. Routh's Best Feeding Tankage ----- | 3575 | ---- | 60.0 | ---- | | Meat and blood product |
| Scott, James L.,—Feighner Fertilizer Company, Wabash, Ind. Feeding Tankage ----- | 9320 | 8.0 | 40.0 | 3.0 | | Meat, blood, bone |
| Southern Seed Company, Louisville, Ky. Atlas Beef Scrap ----- | 3568 | 5.0 | 55.0 | ---- | | Meat product |
| Spratt's Patent, Ltd., Newark, N. J. Crissel ----- | 6037 | 11.0 | 43.0 | 2.0 | | Meat product |
| St. Louis Independent Packing Company, St. Louis, Mo. Independent Brand Digester Tankage ----- | 7204 | 8.0 | 60.0 | 3.0 | | Meat residues, scraps |
| Stolle & Sons, Anton, Richmond, Ind. Stolle's Feeding Tankage ----- | 7586 | 6.0 | 34.0 | ---- | | Meat, blood, bone |
| Sullivan Reduction Company, Farmersburg, Ind. Feeding Tankage ----- | 9339 | 10.0 | 45.0 | ---- | | Meat, blood, bone, intestinal offal |

⁴⁸ Succeeded by Abe Berebitskey

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Swift & Company, Chicago, Ill. | | | | | | |
| Swift's Meat Scraps ----- | 9055 | 6.0 | 50.0 | 3.0 | Meat residues | |
| Swift's Digester Tankage ----- | 9123 | 5.0 | 60.0 | 3.0 | Meat residues | |
| Swift's Soluble Blood Flour ----- | 9189 | ---- | 80.0 | 3.0 | Ground dried blood | |
| Swift's Blood Meal ----- | 9190 | ---- | 80.0 | 3.0 | Ground dried blood | |
| Swift's Meat Meal ----- | 9191 | 4.0 | 46.0 | 3.0 | Meat residues | |
| Swift's Poultry Bone ----- | 9192 | 2.0 | 25.0 | 3.0 | Ground bone | |
| Terre Haute Grease & Tallow Factory, Terre Haute, Ind. | | | | | | |
| Tankage ----- | 8837 | 6.5 | 40.0 | ---- | Meat, blood, bone | |
| Terre Haute Hide & Fertilizer Company., Terre Haute, Ind. | | | | | | |
| Feeding Tankage ----- | 8820 | 8.5 | 62.0 | ---- | Meat, blood, bone | |
| Warsaw Fertilizer & Tanking Company, Warsaw, Ind. | | | | | | |
| Tankage ----- | 8066 | 3.0 | 40.0 | ---- | Meat product | |
| Ward & Company, Montgomery, Chicago, Ill. | | | | | | |
| Blood Meal ----- | 3035 | ---- | 87.0 | ---- | Dried blood | |
| Poultry Bone ----- | 3036 | 4.0 | 25.0 | 50.0 | Meat residues | |
| Beef Scraps ----- | 3037 | 8.0 | 55.0 | 8.0 | Meat residues | |
| Beef Meal ----- | 3038 | 6.0 | 40.0 | 10.0 | Meat residues | |
| Soluble Blood Flour ----- | 3039 | ---- | 87.0 | ---- | Dried blood | |
| Digester Tankage ----- | 3040 | ---- | 8.0 | 60.0 | Meat residues | |
| Western Packing & Provision Company, Union Stock Yards, Chicago, Ill. | | | | | | |
| Western Digester Tankage ----- | 8549 | 6.0 | 60.0 | 3.0 | Meat products | |
| Whitley County Tankage Company, Columbia City, Ind. | | | | | | |
| Feeding Tankage ----- | 8828 | 8.0 | 40.0 | 5.0 | Meat, blood, bone, intestinal offal | |
| Wilson & Company, Inc., Chicago, Ill. | | | | | | |
| Wilson's High Protein Tankage ----- | 9403 | 6.0 | 60.0 | 5.0 | Meat product | |
| Wilson Provision Company, Peoria, Ill. | | | | | | |
| Wilson's Digester Tankage ----- | 6755 | 6.0 | 45.0 | 1.0 | Meat product | |
| Worm & Company, Indianapolis, Ind. | | | | | | |
| Eureka Concentrated Hog Feed ----- | 8202 | 11.0 | 36.4 | 6.5 | Meat, blood, bone | |
| Wuichet Fertilizer Company, The, Dayton, O. | | | | | | |
| Ground Beef Scrap ----- | 3958 | 10.0 | 50.0 | 2.0 | Meat product | |
| Stock Tankage ----- | 4169 | 10.0 | 40.0 | 5.0 | Meat meal, bone | |
| 60% Tankage ----- | 8175 | 5.0 | 60.0 | 5.0 | Meat product | |
| PROPRIETARY AND MOLASSES FEED | | | | | | |
| Acme-Evans Company, Indianapolis, Ind. | | | | | | |
| Acme Horse & Mule Feed ----- | 5636 | 4.0 | 10.0 | 9.0 | Corn, oats, ½% salt | |
| E-Z Dairy Feed ----- | 6683 | 3.5 | 16.0 | 12.0 | Corn, wheat bran, wheat middlings, cottonseed meal, hominy feed, brewers dried grains, linseed oil meal, oat hulls, ½% salt | |
| Acme Molasses Grain Feed ----- | 6867 | 2.0 | 9.0 | 15.0 | Corn, oats, alfalfa meal, molasses | |
| Acme Dairy Feed ----- | 7318 | 6.0 | 20.0 | 7.5 | Brewers dried grains, cottonseed meal, wheat middlings, corn feed meal, winter wheat bran, linseed meal, hominy feed, ½% salt | |
| Acme Stock Feed ----- | 9401 | 3.2 | 8.5 | 13.0 | Corn, homlik, (corn feed meal) wheat bran, wheat middlings, hominy meal, oat feed, (oat middlings, oat hulls), salt | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Acme-Jones Company, Inc., Louisville, Ky. Big X Dairy Feed ----- | 9264 | 4.2 | 17.0 | 15.0 | Velvet bean meal feed, corn feed meal, cottonseed meal, oat middlings, oat hulls, salt |
| Alfalfa Products Company, The, Fremont, Neb. Alfalfa-Lass ----- | 2947 | 0.8 | 10.0 | 20.0 | Alfalfa meal, molasses |
| Alfocorn Milling Company, East St. Louis, Ill. Alfocorn Horse & Mule Feed ----- | 5337 | 2.5 | 10.5 | 15.0 | Corn, oats, alfalfa meal |
| Alfocorn Corn & Oat Chops ----- | 5917 | 3.0 | 10.0 | 10.0 | Corn, oats |
| Leader Horse & Mule Feed ----- | 6994 | 1.5 | 9.0 | 15.0 | Corn, oats, alfalfa meal, molasses |
| X-Tra Oats Horse & Mule Feed ----- | 7818 | 2.0 | 9.0 | 13.5 | Corn, oats, alfalfa meal, ½% salt, molasses |
| Special Molasses Alfocorn Horse & Mule Feed | 7819 | 2.0 | 9.0 | 13.5 | Corn, oats, alfalfa meal, ½% salt, molasses |
| Alfocorn Dairy Feed ----- | 7976 | 4.5 | 25.0 | 15.0 | Cottonseed meal, distillers dried grains, alfalfa meal, corn gluten feed, molasses |
| King Cotton Horse & Mule Feed ----- | 8042 | 1.5 | 9.0 | 15.0 | Corn, alfalfa meal, clipped oat by-product, clipped barley by-product, molasses |
| Alfa-Oats Horse & Mule Feed ----- | 8648 | 2.0 | 9.0 | 13.5 | Oats, alfalfa meal, ½% salt, molasses |
| Full Pail Dairy Feed ----- | 9153 | 3.0 | 16.0 | 15.0 | Cottonseed meal, clipped oat by-product, brewers dried grains, alfalfa meal, ground and bolted wheat screenings, molasses |
| Allan, J. P., Farmersburg, Ind. Allans Horse Feed ----- | 8237 | 1.5 | 8.0 | 10.0 | Corn, oats, alfalfa, molasses |
| American Hominy Company, Indianapolis, Ind. Special Horse Feed ----- | 6727 | 1.0 | 7.0 | 18.0 | Corn, oats, alfalfa, molasses |
| Hexite Horse Feed ----- | 8490 | 1.5 | 10.0 | 14.0 | Corn, rolled oats, alfalfa, molasses |
| Homco Horse Feed ----- | 8537 | 2.5 | 10.0 | 10.0 | Corn, rolled oats, alfalfa, molasses |
| Hexite Dairy Feed ----- | 8647 | 3.5 | 16.0 | 14.0 | Wheat bran, hominy feed, cottonseed meal, velvet bean feed meal, alfalfa, molasses |
| Special Hog Feed ----- | 8691 | 4.0 | 14.0 | 12.5 | Wheat middlings, hominy feed, velvet bean feed meal, alfalfa, molasses |
| Homco Dairy Feed ----- | 8725 | 4.0 | 20.0 | 14.0 | Wheat bran, cottonseed meal, velvet bean feed, linseed meal, alfalfa, molasses |
| Homco Hog Feed ----- | 9316 | 4.0 | 16.0 | 12.0 | Hominy feed, rye middlings, velvet bean feed meal, tankage, alfalfa, molasses |
| American Milling Company, Peoria, Ill. Amco Alfalfa Molasses Feed ----- | 5663 | 0.5 | 10.0 | 26.0 | Alfalfa meal, molasses |
| Sucrene Horse Feed, with Alfalfa ----- | 8246 | 2.5 | 10.0 | 12.0 | Corn, oats, barley, alfalfa, corn distillers solubles, salt, molasses |
| Amco Fat Maker ----- | 8249 | 3.5 | 10.0 | 12.0 | Corn, oats, corn distillers dried grains and solubles, clipped oat by-product, salt, molasses |
| Peoria Horse Feed ----- | 8318 | 2.5 | 10.0 | 14.0 | Corn, oats, corn distillers dried grains and solubles, alfalfa meal, oat middlings, oat shorts, oat hulls, salt, molasses |
| Sucrene Dairy Feed ----- | 8726 | 3.5 | 16.5 | 14.0 | Cottonseed meal, corn gluten feed, ground and bolted wheat screenings, clipped oat by-product, corn distillers dried grains and solubles, palm kernel meal, calcium carbonate, salt, molasses |
| Tip Top Sugared Feed ----- | 8727 | 2.5 | 12.0 | 14.0 | Cottonseed meal, corn distillers dried grains and solubles, palm kernel meal, ground and bolted wheat screenings, clipped oat by-product, calcium carbonate, salt, molasses |
| Amco Dairy Feed ----- | 8728 | 8.0 | 25.0 | 16.0 | Cottonseed meal, corn distillers dried grains and solubles, palm kernel meal, clipped oat by-product, corn gluten feed, calcium carbonate, salt |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| American Milling Company, Peoria, Ill. Sucrene Hog Meal ----- | 8729 | 4.0 | 18.0 | 14.0 | Alfalfa meal, corn feed meal, corn germ meal, corn distillers dried grains and solubles, linseed meal, blood flour, palm kernel meal, calcium carbonate, salt, molasses |
| Kick-A-Poo Horse Feed ----- | 8850 | 3.0 | 10.0 | 12.0 | Rolled oats, alfalfa meal, salt, molasses |
| Amco Stock Feed ----- | 8858 | 3.5 | 10.0 | 9.0 | Corn germ meal, corn feed meal, cottonseed meal, corn gluten feed, oat middlings, oat hulls, salt |
| Tip Top Horse Feed, with Alfalfa ----- | 9049 | 2.5 | 10.0 | 12.0 | Corn, oats, alfalfa, salt, molasses |
| Sucrene Horse & Mule Feed ----- | 9050 | 2.5 | 9.0 | 12.0 | Corn, oats, oat middlings, oat shorts, oat hulls, salt, molasses |
| Arday Farms Milling Company, Rondout, Ill. Arday Horse Feed ----- | 6204 | 2.0 | 9.0 | 12.0 | Corn, oats, alfalfa, salt, molasses |
| (R. K. D.) Arday Hog Meal ----- | 7968 | 5.0 | 18.0 | 10.0 | Wheat middlings, linseed oil meal, corn germ meal, corn feed meal, digester tankage, ground screenings from wheat, oats, barley and flax, charred peat, 1/2% salt, molasses |
| Sunkist Dairy Feed ----- | 8782 | 3.5 | 12.5 | 15.0 | Cottonseed meal, ground screenings from wheat, barley, oats and flax, ground and bolted clipped oat by-product, ground cocoa shell meal, salt, molasses |
| Arday (R K D) Dairy Feed ----- | 8802 | 3.5 | 16.0 | 15.0 | Cottonseed meal, corn gluten meal, malt sprouts, brewers dried grains, cocoa shell meal, ground and bolted clipped oat by-product, ground and bolted screenings from wheat, oats, barley and flax, salt, molasses |
| Arday (R. K. D.) Fatner ----- | 8870 | 3.0 | 10.0 | 15.0 | Corn gluten feed, corn oil cake meal, cottonseed meal, corn feed meal, ground oats, oat middlings, oat shorts, oat hulls, old process linseed oil meal, 1% salt, molasses |
| Arday (R. K. D.) Stock Feed ----- | 8871 | 3.5 | 10.0 | 15.0 | Corn oil cake meal, linseed oil meal, hominy feed, wheat bran, wheat middlings, ground oats, corn feed meal, oat middlings, oat shorts, oat hulls, 1% salt |
| Country Gentlemen Horse Feed ----- | 9180 | 2.0 | 9.0 | 12.0 | Corn, oats, alfalfa, salt, molasses |
| Certified Dairy Ration ----- | 9332 | 4.5 | 25.0 | 12.0 | Oats, brewers dried grains, malt sprouts, corn gluten feed, cottonseed meal, wheat bran, wheat middlings with ground wheat screenings not to exceed mill run, corn oil cake meal, old process linseed oil meal, salt |
| Ashbrook Company, The J. S., Mattoon, Ill. Peerless Horse Ration ----- | 5209 | 2.0 | 9.5 | 7.5 | Corn, oats, alfalfa meal, molasses |
| Diamond A. Horse Feed ----- | 6415 | 2.0 | 9.0 | 16.0 | Corn, oats, alfalfa meal, molasses |
| Jumbo Mixed Feed ----- | 6947 | 2.0 | 8.0 | 16.0 | Corn, oats, alfalfa meal, corn bran, kafir corn bran, molasses |
| Peerless Cow Feed ----- | 8002 | 3.0 | 15.0 | 12.0 | Corn, wheat bran, wheat middlings, cottonseed meal, alfalfa meal, oat middlings, oat shorts, oat hulls, molasses |
| Badenoch Company, J. J., Chicago, Ill. Kumboss Dairy Feed ----- | 6222 | 0.5 | 10.0 | 25.0 | Alfalfa meal, molasses |
| Kurynek Horse Feed ----- | 7060 | 3.0 | 10.0 | 8.0 | Corn, oats, barley |
| Graingold Dairy Feed ----- | 8831 | 5.0 | 26.0 | 14.0 | Oats, hominy feed, cottonseed meal, old process oil meal, alfalfa meal, corn gluten feed, wheat bran with ground wheat screenings not to exceed mill run, 1% salt |
| Badenoch's Stock Feed ----- | 9012 | 3.0 | 8.0 | 14.0 | Hominy feed, corn feed meal, oat middlings, oat shorts, oat hulls, salt |
| Gloskoat Horse Feed ----- | 9197 | 2.0 | 10.0 | 12.0 | Corn, oats, barley, alfalfa meal, molasses |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Bartlett Company, The J. E., Jackson, Mich. Bartlett's Malt Dairy Feed ----- | 8404 | 5.0 | 21.0 | 20.0 | Corn, malt, malt sprouts |
| Bauermeister Company, Inc., Chas. W., Terre Haute, Ind. Bauermeister's Horse Feed ----- | 5982 | 4.0 | 14.0 | 5.0 | Corn, hominy feed, corn gluten meal, wheat bran, wheat middlings, cottonseed meal, brewers dried grains, linseed oil meal, (old process) |
| Belt Elevator & Feed Company, Indianapolis, Ind. Alfalfa Mixed Feed ----- | 3818 | 2.7 | 9.0 | 15.5 | Corn, oats, alfalfa, molasses |
| Big 4 Elevator Company, Mattoon, Ill. Big 3 Horse Feed ----- | 8692 | 2.1 | 10.0 | 16.0 | Corn, oats, alfalfa meal, molasses |
| Big Four Elevator & Milling Company, Mattoon, Ill. Big 4 Horse Feed ----- | 6963 | 2.7 | 9.7 | 8.0 | Corn, oats, alfalfa meal, molasses |
| Blanton Milling Company, Indianapolis, Ind. Blanton's Pig Feed ----- | 7378 | 3.0 | 13.5 | 8.0 | Wheat middlings, low grade flour |
| Blatchford Calf Meal Factory, Waukegan, Ill. Blatchford's Hog Ration ----- | 7695 | 7.5 | 15.2 | 6.7 | Barley meal, linseed oil meal, wheat flour, rice meal, locust bean meal, cocoa shell meal, bean meal |
| Bloomington Milling Company, The, Bloomington, Ind. Mixed Feed ----- | 8786 | 3.0 | 13.0 | 10.0 | Wheat bran, middlings, whole wheat screenings, corn bran, cottonseed meal, brewers dried grains, alfalfa meal, clipped oat by-product, corn feed meal, ground flaxseed screenings |
| Brizius Company, Chas. W., Newburgh, Ind. Log Cabin Horse Feed ----- | 7980 | 2.0 | 9.0 | 16.0 | Corn, oats, alfalfa meal, molasses |
| Mack's Mixed Feed ----- | 9411 | 2.0 | 8.0 | 16.0 | Corn, oats, alfalfa meal, corn bran, molasses |
| Brook Flour & Feed Mill, Brook, Ind. Rising Sun Pig & Poultry Feed ----- | 8388 | 3.0 | 12.0 | 11.0 | Corn, corn feed meal, corn bran, wheat middlings, ground wheat screenings, alfalfa meal, linseed oil meal, tankage, (meat, blood, bone, intestinal offal), blood meal, salt |
| Brown, George, Evansville, Ind. Dan Patch Horse Feed ----- | 5318 | 3.5 | 10.0 | 8.0 | Corn, oats, wheat bran, salt |
| Brown Molasses Food Company, Anderson, Ind. Bro-Mo-Co Molasses Dairy Feed ----- | 8047 | 3.0 | 14.0 | 8.0 | Cottonseed meal, sorghum cane meal, sorghum seed meal, salt, molasses |
| Brudi & Company, Jos., New Haven, Ind. Bell Cow Dairy Feed ----- | 8016 | 3.5 | 16.5 | 11.0 | Corn, oats, brewers dried grains, wheat bran, corn gluten feed, alfalfa meal, cottonseed meal, linseed oil meal, ground wheat screenings, salt, molasses |
| Buckeye Grain & Milling Company, The, Columbus, Ohio Alcorn ----- | 5084 | 3.0 | 10.0 | 14.0 | Corn, oats, alfalfa meal, brewers dried grains, oat middlings, oat shorts, oat hulls, molasses |
| Butler & Company, Edw. J., Chicago, Ill. Edw. J. Butler & Co's Special Horse Feed ---- | 7261 | 2.0 | 10.0 | 12.0 | Corn, oats, alfalfa meal, molasses |
| Butler's Golden Leaf ----- | 7262 | 0.5 | 12.0 | 20.0 | Alfalfa meal, 1% salt, molasses |
| Butler's Premium Hog Feed ----- | 7774 | 4.0 | 23.0 | 12.0 | Wheat middlings, barley flour, flour middlings, red dog flour, linseed oil meal, alfalfa meal, tankage |
| Butlers Premium Pig Meal ----- | 7991 | 4.0 | 20.0 | 12.0 | Alfalfa meal, linseed oil meal, digester tankage, blood flour, barley flour, red dog flour |
| Butler's Balanced Ready Ration Hog Feed ---- | 8337 | 6.0 | 16.5 | 22.0 | Wheat middlings, flour middlings, corn oil cake meal, digester tankage, peanut meats, peanut shells, palm oil from manufacture tin plate |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Butler & Company, Edw. J., Chicago, Ill. Butler Special Hog Tankage Feed ----- | 8617 | 6.0 | 40.0 | 10.0 | Digester tankage, ground peanut meats, ground peanut shells, palm oil |
| Butler's Premium Dairy Feed ----- | 8934 | 6.0 | 21.0 | 10.5 | Cottonseed meal, corn distillers grains and solubles, corn gluten feed, linseed oil meal, corn feed meal, white wheat middlings, wheat bran (with ground wheat screenings not exceeding mill run), oat middlings, oat shorts, oat hulls, 1% salt |
| Butler's Balanced Hog Ration ----- | 9331 | 6.0 | 16.5 | 10.0 | Corn, wheat middlings, rye middlings, corn oil cake meal, alfalfa meal, linseed oil meal, digester tankage |
| Byrnes & Company, W. J., Chicago, Ill. Banner Horse Feed ----- | 3115 | 3.0 | 10.0 | 6.0 | Corn, rolled oats, rolled barley |
| Cairo Milling Company, Cairo, Ill. Velvet Molasses Feed ----- | 8516 | 2.0 | 9.0 | 12.0 | Corn, alfalfa meal, ground wheat screenings, molasses |
| Chambers, Ola, Jasonville, Ind. Chambers Mixed Feed ----- | 5103 | 3.5 | 8.5 | 10.0 | Corn, oats, wheat bran, alfalfa, molasses |
| Champion Feed Milling Company, Lyons, Iowa Champion Digester Hog Feed ----- | 4278 | 2.9 | 22.0 | 9.0 | Wheat germs, tankage, charred peat, flax plant by-products (shives, pods, seeds), molasses |
| Champion Molasses Feed Compound ----- | 6774 | 1.5 | 10.0 | 8.2 | Corn, wheat bran, cottonseed meal, ground screenings from wheat, barley and flax, flax plant by-product, charred peat, cane molasses |
| Champion Special Molasses Feed Compound (Heavy Cottonseed Mixture) ----- | 7470 | 3.5 | 16.5 | 9.0 | Corn, wheat bran, cottonseed meal, flax plant by-product, ground screenings from wheat, barley and flax, charred peat, cane molasses |
| Chapin & Company, Chicago, Ill. Lactola Dairy Feed ----- | 9201 | 3.0 | 16.5 | 12.0 | Choice cottonseed meal, corn distillers grains, clipped oat by-products, corn gluten feed, corn germ meal, linseed meal, brewers grains, Ivory nut meal, salt, cane molasses |
| Unicorn Dairy Ration ----- | 9388 | 5.5 | 26.0 | 11.0 | Corn distillers grains, cottonseed meal, linseed meal, hominy meal, corn gluten feed, barley feed, copra meal, brewers dried grains, wheat bran, salt |
| Chapin & Company, Hammond, Ind. Centaur Stock Feed ----- | 6414 | 6.0 | 16.0 | 9.0 | Wheat bran, hominy meal, corn gluten feed, brewers dried grains, linseed meal |
| Chapman-Doake Company, The, Decatur, Ill. Vigor Horse and Mule Feed ----- | 5828 | 2.0 | 8.0 | 17.0 | Corn, oats, alfalfa, molasses |
| Diamond "F" Cow Feed ----- | 8432 | 3.0 | 12.0 | 15.0 | Corn, wheat bran, wheat middlings, hominy feed, cottonseed feed, (cottonseed meal and hulls) alfalfa meal, ½% salt, molasses |
| Diamond "F" Horse Feed ----- | 8433 | 3.0 | 10.0 | 17.0 | Corn, oats, alfalfa meal, ½% salt, molasses |
| Yankee Stock Feed ----- | 8434 | 3.0 | 12.0 | 17.0 | Corn, wheat bran, wheat middlings, hominy feed, alfalfa meal, cottonseed feed (cottonseed meal and hulls), ground wheat screenings, ½% salt, molasses |
| Yankee Horse and Mule Feed ----- | 8642 | 3.0 | 11.5 | 20.0 | Corn, oats, wheat bran, corn feed meal, alfalfa meal, corn gluten feed, ½% salt, molasses |
| Diamond "F" Hog Feed ----- | 8643 | 4.0 | 22.0 | 15.0 | Corn, wheat shorts, corn feed meal, corn gluten feed, linseed oil meal, digester tankage, cottonseed feed meal (cottonseed meal and hulls), ½% salt |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Chapman-Doake Company, The, Decatur, Ill. Feeding Meal ----- | 8948 | 4.0 | 9.0 | 5.0 | | Ground corn, ground kafir, ground wheat screenings, homcoline (corn germ meal) |
| Chicago Heights Oil Mfg. Company, Chicago, Ill. "Prize" Brand Malt Grains ----- | 6549 | 6.5 | 19.0 | 19.0 | | Corn, barley malt, malt sprouts |
| "Prize" Alfalfa Molasses Feed ----- | 6733 | 0.5 | 12.0 | 20.0 | | Alfalfa meal, 1% salt, molasses |
| "Prize" Cooked Hog Feed ----- | 6917 | 7.0 | 18.0 | 12.0 | | Corn germ meal, ground linseed oil cake, ground flaxseed screenings |
| "Our Prize Meal" ----- | 6967 | 6.0 | 16.0 | 12.0 | | Cooked partially extracted ground flaxseed screenings |
| "Cornflax" Sweetened Hogfeed ----- | 6987 | 6.0 | 16.0 | 12.0 | | Corn germ meal, linseed meal, ground cooked and partially extracted flaxseed screenings, molasses |
| "Prize" Horse Feed ----- | 7003 | 2.0 | 9.0 | 25.0 | | Corn, oats, alfalfa, molasses |
| Cincinnati Grain & Hay Company, The, Cincinnati, Ohio No Better Sweet Dairy Feed ----- | 7309 | 4.0 | 19.0 | 9.5 | | Wheat bran, cottonseed meal, distillers dried grains, brewers dried grains, hominy meal, malt sprouts, ½% salt, molasses |
| No Better Horse & Mule Feed ----- | 7310 | 4.0 | 12.0 | 10.0 | | Corn, oats, wheat bran, brewers dried grains, alfalfa meal, ½% salt, molasses |
| Dry Dairy Ration ----- | 8672 | 5.6 | 20.2 | 12.3 | | Corn distillers dried grains, brewers dried grains, malt sprouts, cottonseed meal, hominy feed, wheat bran, wheat middlings, ½% salt |
| Citizens Hay & Grain Company, Indianapolis, Ind. Citizens Special Horse Feed ----- | 8866 | 3.5 | 8.0 | 9.0 | | Corn and cob meal (crushed ear corn) oats |
| Clark & Sons, C. G., Rushville, Ind. Clark's Stock Feed ----- | 6344 | 2.7 | 7.8 | 12.0 | | Corn, corn feed meal, oat middlings, oat shorts, oat hulls, 1% salt |
| Coal City Milling Company, Coal City, Ind. Top Round Horse & Cow Feed ----- | 3760 | 3.0 | 9.0 | 10.0 | | Corn, oats, wheat bran |
| Combs & Son, L., Vincennes, Ind. Comb's Ideal Horse Feed ----- | 6651 | 2.0 | 10.0 | 10.0 | | Wheat bran, corn meal, alfalfa meal, molasses |
| Combs Oats, Corn Meal, Alfalfa Meal and Molasses ----- | 7316 | 2.0 | 8.0 | 14.0 | | Oats, corn meal, alfalfa meal, molasses |
| Combs Dairy Feed ----- | 8524 | 3.0 | 16.0 | 12.0 | | Wheat bran, corn meal, alfalfa meal, cottonseed meal, cottonseed hulls, salt, molasses |
| Corno Mills Company, The, St. Louis, Mo. Corno Dairy Feed ----- | 9021 | 3.5 | 15.0 | 15.0 | | Alfalfa meal, cottonseed meal, ground cottonseed hulls, oat middlings, oat shorts, oat hulls, molasses |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. Alfalfa Molasses Feed ----- | 4953 | 1.0 | 10.0 | 25.0 | | Alfalfa, molasses |
| Alfalfa Fat ----- | 5290 | 0.5 | 9.0 | 25.0 | | Alfalfa meal, molasses |
| Thrift Horse Feed ----- | 8313 | 2.5 | 10.0 | 10.0 | | Corn, oats, corn feed meal, wheat bran with ground wheat screenings not exceeding mill run, alfalfa meal, salt, molasses |
| Thrift Dairy Feed ----- | 8437 | 3.0 | 14.0 | 20.0 | | Wheat bran, cottonseed meal, linseed oil meal, brewers dried grains, alfalfa meal, corn feed meal, ground corn screenings, salt, molasses |
| Crum, John, Milan, Ind. Horse and Mule Feed ----- | 6652 | 3.6 | 9.0 | 12.0 | | Corn, oats, rye, wheat bran |
| Crum's Horse and Mule Feed ----- | 7784 | 3.0 | 8.5 | 12.0 | | Corn, oats, rye, corn feed meal, wheat bran, wheat middlings, ground wheat screenings |
| Dickinson Company, The Albert, Chicago, Ill. White Cross Stock Feed ----- | 4233 | 3.5 | 10.0 | 10.0 | | Oats, barley, cottonseed meal, wheat feed meal, corn bran, corn feed meal, salt |
| White Cross Horse Feed ----- | 6245 | 2.5 | 10.0 | 8.0 | | Corn, oats, barley |
| Dickinson's Hobby Horse Feed ----- | 6753 | 1.5 | 9.0 | 15.0 | | Corn, oats, barley, alfalfa meal, molasses |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Dickinson Company, The Albert, Chicago, Ill. | | | | | |
| Dickinson's Honeysuckle Feed ----- | 6785 | 0.5 | 10.0 | 25.0 | Alfalfa meal, molasses |
| Dickinson's Oasis Horse Feed ----- | 7098 | 1.5 | 9.0 | 15.0 | Corn, oats, barley, alfalfa meal, molasses |
| Rival Horse Feed ----- | 7240 | 1.5 | 9.0 | 15.0 | Corn, oats, barley, alfalfa meal, molasses |
| Stag Stock Feed ----- | 8500 | 3.0 | 9.0 | 12.0 | Barley, corn feed meal, corn bran, wheat middlings, cottonseed meal, ground corn screenings, oat middlings, oat shorts, oat hulls, ½% salt |
| Dickinson Dairy Feed ----- | 9119 | 5.5 | 24.0 | 11.0 | Corn gluten feed, brewers dried grains, wheat bran, wheat middlings, cottonseed meal, linseed meal, hominy feed, ½% salt |
| Rival Hog Feed ----- | 9280 | 3.0 | 12.5 | 12.5 | Linseed oil meal, corn bran, corn feed meal, alfalfa meal, ground screenings from wheat, oats, barley and kafir, salt |
| Dixie Mills Company, East St. Louis, Ill. | | | | | |
| Anchor Horse and Mule Feed ----- | 4550 | 3.5 | 10.0 | 12.0 | Corn, oats, alfalfa meal, cottonseed meal |
| Dixie Alfalfa Molasses Feed ----- | 5420 | 0.5 | 8.0 | 25.0 | Alfalfa meal, molasses |
| Anchor Molasses Horse and Mule Feed ----- | 5839 | 2.5 | 10.0 | 12.0 | Corn, oats, alfalfa meal, molasses |
| Diamond Horse & Mule Feed ----- | 6935 | 1.5 | 9.0 | 12.0 | Corn, oats, alfalfa meal, cane molasses |
| Clipco Molasses Feed ----- | 7977 | 1.0 | 7.0 | 12.0 | Corn, oats, clipped oat by-product, molasses |
| Dixie Horse & Mule Feed ----- | 8314 | 2.5 | 10.0 | 12.0 | Corn, oats, alfalfa meal, sugar cane molasses |
| Polo Horse Feed ----- | 8546 | 1.5 | 9.0 | 12.0 | Corn, oats, alfalfa meal, cane molasses |
| Anchor Dairy Feed ----- | 8634 | 4.0 | 24.0 | 12.0 | Corn feed meal, cottonseed meal, corn gluten feed, old process linseed meal, wheat bran, wheat middlings, alfalfa meal, dried brewers grains, 1% salt |
| Dixie Dairy Feed ----- | 8635 | 3.5 | 16.5 | 12.0 | Alfalfa meal, cottonseed meal, corn feed meal, ground flaxseed screenings, clipped oat by-product, molasses |
| Polo Dairy Feed ----- | 8636 | 3.5 | 17.5 | 16.0 | Cottonseed meal, brewers dried grains, alfalfa meal, clipped oat by-product, wheat bran, corn feed meal, ground flaxseed screenings |
| Diamond Dairy Feed ----- | 8985 | 3.5 | 16.5 | 12.0 | Cottonseed meal, clipped oat by-product, ground flaxseed screenings, molasses |
| Holsum Dairy Feed ----- | 9223 | 2.0 | 12.0 | 17.0 | Cottonseed feed, (cottonseed meal, cottonseed hulls) clipped oat by-product, ground flaxseed screenings, molasses |
| Holsum Horse Feed ----- | 9278 | 1.0 | 9.0 | 16.0 | Corn, oats, alfalfa meal, ground screenings from corn, oats, barley and kafir, molasses |
| Early & Daniel Company, The, Cincinnati, Ohio | | | | | |
| Tuxedo Chop ----- | 5297 | 3.0 | 10.5 | 12.0 | Corn, oats, alfalfa meal, brewers dried grains, molasses |
| Ce-re-a-lla Sweets for Dairy ----- | 8781 | 4.0 | 18.0 | 9.0 | Wheat bran, wheat middlings, corn gluten feed, cottonseed meal, corn meal, corn distillers dried grains, brewers dried grains, malt sprouts, molasses |
| Eberts & Bro., North Vernon, Ind. | | | | | |
| Quality Feed ----- | 2919 | 5.0 | 16.0 | 12.0 | Wheat bran, wheat middlings, hominy meal, alfalfa meal, linseed meal, cottonseed meal, salt |
| Molasses Horse Feed ----- | 5169 | 2.0 | 8.0 | 17.0 | Corn, oats, alfalfa, molasses |
| Quality Horse Feed ----- | 8670 | 2.0 | 10.0 | 12.0 | Corn, oats, alfalfa, molasses |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Edinger & Company, Louisville, Ky. | | | | | |
| Arrow Horse & Mule Feed | 6877 | 2.0 | 10.0 | 13.0 | Corn, oats, alfalfa, salt, molasses |
| Eureka Ground Feed | 7358 | 4.5 | 10.6 | 7.0 | Corn, oats, barley, wheat bran |
| Arrow Alfalfa and Molasses | 7562 | 1.0 | 9.0 | 25.0 | Alfalfa, molasses |
| Arrow Dairy Feed | 8054 | 4.5 | 19.0 | 11.0 | Wheat bran, wheat middlings, corn meal, cottonseed meal, alfalfa, distillers dried grains, (corn, barley, malt, rye) brewers dried grains, (corn grits, barley, malt, rice) molasses |
| E-Co Falfa Feed | 8417 | 3.5 | 11.0 | 15.0 | Corn, oats, wheat bran, alfalfa, 1½% salt |
| Arrow Hog Meal | 8522 | 3.0 | 19.0 | 12.0 | Wheat middlings, digester tankage, corn meal, corn germ meal, alfalfa meal, cottonseed meal, 1% salt |
| Egloff Milling Company, Vincennes, Ind. | | | | | |
| Horse and Mule Chops | 7558 | 3.5 | 9.0 | 6.5 | Corn, oats |
| Emison & Company, J. & S., (Baltic Mills) Vincennes, Ind. | | | | | |
| Arrow Stock Feed | 4635 | 3.0 | 11.0 | 7.0 | Cracked corn, ground oats, alfalfa meal |
| Amo Syrup Feed | 5108 | 2.0 | 7.0 | 12.0 | Corn, alfalfa meal, ground screenings from wheat, oats and barley, 1% salt, molasses |
| Sentinel Horse & Cattle Feed | 6829 | 2.0 | 7.0 | 12.0 | Cottonseed meal, corn feed meal, alfalfa meal, ground screenings from wheat, oats, barley and corn, clipped oat by-product, 1% salt, molasses |
| Emison's Dairy Feed | 8258 | 3.7 | 12.7 | 14.0 | Hominy feed, corn feed meal, cottonseed meal, alfalfa meal, ground corn silks, husks and screenings, 1% salt |
| Enos, M. T., New Albany, Ind. | | | | | |
| Enos' Dairy Feed | 2498 | 3.6 | 9.2 | 13.0 | Wheat bran, alfalfa meal, oats, corn and cob meal |
| Eureka Mills Company, St. Louis, Mo. | | | | | |
| Eureka Cattle Feed | 5793 | 3.0 | 9.5 | 10.4 | Oats, alfalfa meal, corn meal, hominy feed, ground oat hulls |
| Fairplay Feed Mills, Linton, Ind. | | | | | |
| Fairplay Dairy Feed | 6451 | 3.0 | 12.0 | 12.0 | Wheat bran, shorts, cottonseed meal, alfalfa, clipped oat by-product, salt, molasses |
| Fairplay Horse Feed | 6453 | 2.0 | 9.0 | 15.0 | Corn, oats, barley, alfalfa, salt, molasses |
| Heavy Molasses Feed | 6501 | 1.0 | 8.0 | 20.0 | Alfalfa meal, clipped oat by-product, salt, molasses |
| Fairplay Fattener | 7169 | 2.0 | 5.0 | 13.0 | Corn, oats, alfalfa meal, clipped oat by-product, salt, molasses |
| Feed Products Milling Company, Chicago, Ill. | | | | | |
| Eatall Horse Feed | 8353 | 3.0 | 10.0 | 8.0 | Sifted cracked corn, rolled oats, rolled barley |
| Kingfalfa Meadow Feed | 8354 | 0.5 | 10.0 | 26.0 | Alfalfa, molasses |
| Polo Stock Feed | 8356 | 2.5 | 10.0 | 9.0 | Oats, wheat bran, wheat middlings, corn gluten feed, corn feed meal, oat middlings, oat shorts, oat hulls |
| Ferger Grain Company, Cincinnati, Ohio. | | | | | |
| York Dairy Feed | 8330 | 4.5 | 17.0 | 13.0 | Oats, wheat bran, wheat middlings, malt sprouts, corn meal, corn distillers grains, cottonseed meal, salt |
| Blue Boar Hog Feed | 8331 | 5.5 | 17.0 | 13.0 | Wheat middlings, corn meal, corn gluten meal, hominy meal, digester tankage, salt |
| Sunshine Dairy Feed | 8332 | 4.0 | 18.0 | 12.0 | Wheat bran, wheat middlings, hominy meal, corn meal, corn distillers grains, cottonseed meal, alfalfa meal, salt, molasses |
| Nutritia Horse Feed | 8333 | 4.0 | 12.0 | 10.0 | Corn, oats, wheat bran, alfalfa meal, cottonseed meal, brewers grains, salt, molasses |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Ferger Grain Company, Cincinnati, Ohio | | | | | |
| Nutritia Dairy Feed ----- | 8334 | 7.0 | 24.0 | 13.0 | Wheat bran, wheat middlings, hominy meal, cottonseed meal, corn distillers grains, malt sprouts, linseed meal, salt |
| Queen City Horse Feed ----- | 8391 | 3.0 | 10.0 | 12.0 | Corn, oats, wheat bran, cottonseed meal, alfalfa meal, brewers dried grains, salt, molasses |
| Fisher Bros., Evansville, Ind. | | | | | |
| Red Crown Horse & Mule Feed ----- | 8717 | 1.5 | 9.0 | 15.0 | Corn, oats, alfalfa meal, 1% salt, molasses |
| Diamond Horse and Mule Feed ----- | 8719 | 2.0 | 9.0 | 17.0 | Corn, oats, alfalfa meal, 1% salt, molasses |
| Diamond Hog Feed ----- | 8720 | 4.0 | 20.0 | 15.0 | Wheat middlings, linseed oil meal, cottonseed meal, hominy feed, corn feed meal, digester tankage, ½% salt |
| Diamond Cow Feed ----- | 9000 | 3.0 | 15.0 | 15.0 | Wheat bran, wheat middlings, corn feed meal, cottonseed meal and hulls, linseed oil meal, ½% salt, alfalfa meal, molasses |
| Yankee Horse & Mule Feed ----- | 9405 | 2.0 | 8.0 | 17.0 | Corn, oats, corn bran, alfalfa meal, 1% salt, molasses |
| Fruechtenicht, Henry, Louisville, Ky. | | | | | |
| Blue Grass Horse & Mule Feed ----- | 8576 | 2.5 | 9.0 | 12.0 | Corn, oats, alfalfa meal, ½% salt, molasses |
| Blue Grass Dairy Feed ----- | 8578 | 3.5 | 17.0 | 16.0 | Cottonseed meal, corn meal, alfalfa meal, corn distillers dried grains, brewers dried grains, ½% salt, molasses |
| Gandy & Company, O., South Whitley, Ind. | | | | | |
| Standard Hog Feed ----- | 9074 | 5.0 | 14.0 | 8.0 | Corn, oats, corn feed meal, corn bran, corn germ meal, corn gluten feed, wheat middlings, ground wheat screenings |
| Gibson Live Stock & Feed Company, Princeton, Ind. | | | | | |
| Pilgrim Horse Feed ----- | 9121 | 2.5 | 7.5 | 9.0 | Corn, oats, alfalfa, salt, molasses |
| Pilgrim Dairy Feed ----- | 9403 | 4.0 | 17.0 | 15.0 | Wheat bran, cottonseed meal, corn feed meal, velvet bean feed, salt |
| Golden Grain Milling Company, East St. Louis, Ill. | | | | | |
| Golden Grain Cornette Brand ----- | 5532 | 1.5 | 9.0 | 12.0 | Corn, oats, alfalfa meal, ½ to 1% salt, molasses |
| "Ben Hur Horse & Mule Feed" ----- | 8203 | 2.0 | 9.0 | 12.0 | Corn, oats, alfalfa meal, ½ to 1% salt, molasses |
| "Golden Grain Horse & Mule Feed" ----- | 8204 | 2.0 | 9.0 | 14.0 | Corn, oats, alfalfa meal, ½ to 1% salt, molasses |
| "Puritan Horse & Mule Feed" ----- | 8205 | 1.5 | 9.0 | 16.0 | Corn, oats, alfalfa meal, ½ to 1% salt, molasses |
| "Golden Grain Alfalfa Molasses Feed" ----- | 8206 | 1.0 | 10.0 | 25.0 | Alfalfa meal, ½ to 1% salt, molasses |
| "Golden Grain Dairy Feed" ----- | 8207 | 3.0 | 12.0 | 18.0 | Alfalfa meal, brewers dried grains, cottonseed meal, clipped oat by-product, ½ to 1% salt, molasses |
| "Mascot Horse & Mule Feed" ----- | 8324 | 1.5 | 9.0 | 18.0 | Corn, oats, alfalfa meal, ½ to 1% salt, molasses |
| "Val-U Horse & Mule Feed" ----- | 8371 | 1.5 | 9.0 | 18.0 | Corn, oats, alfalfa meal, peanut meats, peanut hulls, palm oil, (palm meal) ½ to 1% salt, molasses |
| "Liberty Bond Horse & Mule Feed" ----- | 8840 | 1.5 | 9.0 | 18.0 | Oats, alfalfa meal, ½ to 1% salt, molasses |
| Butter Fat Dairy Feed ----- | 9161 | 4.0 | 18.0 | 16.5 | Cottonseed meal, corn gluten feed, wheat bran, wheat middlings, copra meal, (dried cocoanut meats) alfalfa meal, ½ to 1% salt, molasses |
| Grain Belt Mills Company, South St. Joseph, Mo. | | | | | |
| "Hunter" Horse and Mule Feed ----- | 8147 | 2.0 | 9.0 | 14.0 | Corn, oats, alfalfa meal, ½ to 1% salt, molasses |
| "Bronco" Horse and Mule Feed ----- | 8148 | 1.5 | 10.0 | 15.0 | Corn, oats, alfalfa meal, ½ to 1% salt, molasses |
| "Pennant" Horse and Mule Feed ----- | 8149 | 1.0 | 10.0 | 18.0 | Corn, oats, alfalfa meal, ½ to 1% salt, molasses |
| "Stag" Alfalfa and Molasses Feed ----- | 8150 | 0.5 | 10.0 | 24.0 | Alfalfa meal, ½ to 1% salt, molasses |
| "Greenleaf" Alfalfa and Molasses Feed ----- | 8151 | 0.7 | 10.0 | 23.0 | Alfalfa meal, ½ to 1% salt, molasses |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Grain Belt Mills Company, South St. Joseph, Mo. Oatfalfa (Brand) Horse & Mule Feed..... | 8750 | 2.0 | 12.0 | 17.0 | | Oats, alfalfa meal, ½% salt, molasses |
| Ex X tre Brand Horse & Mule Feed | 8776 | 2.0 | 9.0 | 14.0 | | Corn, oats, alfalfa meal, ½ to 1% salt, molasses |
| "Bonanza" Horse and Mule Feed | 9185 | 1.5 | 10.0 | 15.0 | | Corn, oats, alfalfa meal, ½% salt, molasses |
| "Red D" Dairy Feed | 9186 | 4.0 | 16.0 | 15.0 | | Cottonseed meal, alfalfa meal, ground wheat screenings, corn feed meal, ½% salt, molasses |
| Topper Hog Feed | 9349 | 3.5 | 20.0 | 12.0 | | Alfalfa meal, ground wheat screenings, linseed meal, tankage, dried peat, ½ to 1% salt, molasses |
| Habig Bros., Indianapolis, Ind. Habig's Horse Feed | 3271 | 4.0 | 10.0 | 8.0 | | Oats, wheat bran, linseed meal, hominy feed, corn feed meal, corn bran |
| Hales & Edwards Company, Chicago, Ill. Greeno Feed | 7578 | 0.5 | 10.0 | 26.0 | | Alfalfa, molasses |
| Harvest Horse Feed | 7615 | 2.0 | 10.0 | 15.0 | | Corn, oats, barley, alfalfa, molasses |
| Excelsior Horse Feed | 7817 | 3.0 | 10.0 | 8.0 | | Corn, rolled oats, rolled barley |
| Red Horn Dairy Feed | 8273 | 4.0 | 25.0 | 15.0 | | Cottonseed meal, corn gluten feed, wheat bran, linseed oil meal, malt sprouts, corn feed meal, brewers dried grains |
| Gold Flake Dairy Feed | 8274 | 3.5 | 16.0 | 15.0 | | Cottonseed meal, corn gluten feed, linseed oil meal, clipped oat by-product, ground and bolted screenings from wheat, barley and kafir, salt, molasses |
| Pioneer Hog Feed (With Dried Buttermilk)--- | 8275 | 3.0 | 12.0 | 12.0 | | Wheat middlings, corn feed meal, linseed oil meal, ground and bolted screenings from wheat, barley and kafir, dried buttermilk |
| Pioneer Stock Feed | 9043 | 2.5 | 10.0 | 9.0 | | Corn feed meal, wheat middlings, wheat bran, corn gluten feed, oat middlings, oat shorts, oat hulls, barley feed |
| Kingfalfa Horse Feed | 9116 | 2.0 | 10.0 | 15.0 | | Corn, oats, barley, alfalfa, molasses |
| Eatall Dairy Feed | 9117 | 4.0 | 20.0 | 10.0 | | Barley, oats, old process linseed oil meal, corn gluten feed, wheat bran, brewers dried grains, malt sprouts, cottonseed meal, corn feed meal, hominy feed |
| Hamlin & Company, Dwight E., Pittsburgh, Pa. H. & S. Alfalfa Feed | 5144 | 3.5 | 14.0 | 16.0 | | Alfalfa, brewers and distillers dried grains, molasses |
| Hamkins Purekane Molasses Feed | 6543 | 1.5 | 5.0 | 8.0 | | Brewers dried grains, distillers dried grains, cane molasses |
| Hanks Company, The Howard H., Chicago, Ill. Kingfalfa Meadow Feed | 5267 | 0.5 | 10.0 | 26.0 | | Alfalfa meal, molasses |
| Kingfalfa Horse Feed | 5276 | 2.0 | 9.0 | 15.0 | | Corn, oats, alfalfa meal, molasses |
| Polo Feed | 6420 | 3.0 | 9.0 | 12.0 | | Corn, corn feed meal, oat middlings, oat shorts, oat hulls |
| Haynes Milling Company, The, Portland, Ind. Paymaster Pig Feed | 9245 | 4.0 | 12.0 | 9.0 | | Barley, corn feed meal, ground wheat screenings, linseed oil meal |
| Hazleton Flour Mills, Hazleton, Ind. Horse Feed | 8596 | 2.0 | 8.0 | 20.0 | | Corn, oats, alfalfa meal, molasses, salt |
| Henderson Grain Company, Henderson, Ky. Kentucky Star Horse & Mule Feed | 6239 | 2.0 | 9.0 | 12.0 | | Corn, oats, alfalfa meal, clipped oat by-product, salt, molasses |
| O. K. Uncle Sam Horse and Mule Feed..... | 6240 | 2.5 | 10.0 | 12.0 | | Corn, oats, alfalfa meal, clipped oat by-product, 1% salt, molasses |
| H. O. Company, The, Buffalo, N. Y. The H-O Co's Algrane Horse Feed | 7090 | 4.0 | 11.0 | 10.0 | | Corn, oats, wheat middlings, hominy feed, corn gluten feed, ground wheat screenings, oat shorts, oat hulls, ½% salt, molasses |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Hord Alfalfa Meal Company, T. B., Central City, Neb. "A. M" ----- | 2956 | 0.8 | 10.0 | 20.0 | Alfalfa meal, molasses |
| Illinois Feed Mills, St. Louis, Mo. O. K. Feed with Molasses ----- | 7881 | 1.5 | 9.0 | 15.0 | Corn, oats, alfalfa meal, 1% salt, molasses |
| Star Feed with Molasses ----- | 7883 | 1.7 | 9.3 | 13.0 | Corn, oats, alfalfa meal, salt, molasses |
| Indiana Elevator Company, Indianapolis, Ind. ⁴⁹ King Horse & Mule Feed ----- | 6890 | 1.5 | 8.0 | 18.0 | Corn, oats, alfalfa meal, molasses |
| Indiana Milling Company, Terre Haute, Ind. Whiskerene ----- | 2127 | 2.0 | 11.4 | 14.0 | Corn silks, husks, whole and ground corn screenings |
| Blue Ribbon Feed ----- | 3330 | 3.5 | 8.0 | 8.5 | Ground shelled corn, cob meal |
| Universal Feed ----- | 5212 | 3.2 | 10.2 | 7.2 | Corn, oats, wheat bran, molasses |
| Cracker-Jack ----- | 5366 | 1.5 | 8.0 | 14.0 | Wheat bran, cob meal, molasses |
| Imco Combination Feed ----- | 5686 | 2.0 | 9.0 | 7.0 | Ground corn screenings, ground wheat screenings, ground clipped oat by-product, molasses |
| "Holstein Feed" ----- | 6825 | 3.0 | 11.0 | 16.0 | Wheat bran with ground wheat screenings not to exceed mill run, cob meal |
| International Sugar Feed Company, Minneapolis, Minn. International Hog Feed and Charcoal ----- | 6097 | 4.5 | 22.5 | 12.0 | Old process linseed oil meal, tankage, ground and bolted screenings from wheat, oats, barley and flax, charcoal, salt, molasses |
| International Ready Ration Dairy Feed ----- | 8896 | 5.0 | 20.0 | 15.0 | Wheat bran, cottonseed meal, old process linseed oil meal, ground screenings from wheat, oats, barley and flax, clipped oat by-product, salt, molasses |
| International Dan Patch Special Horse Feed -- | 9073 | 3.0 | 9.0 | 15.0 | Corn, oats, alfalfa, salt, molasses |
| International Planters Dairy Feed ----- | 9083 | 3.5 | 22.0 | 18.5 | Cottonseed feed, (cottonseed meal, cottonseed hulls) linseed oil meal, salt, molasses |
| International Planters Cattle Feed ----- | 9084 | 3.5 | 22.0 | 18.5 | Cottonseed feed, (cottonseed meal, cottonseed hulls) linseed oil meal, salt, molasses |
| International Special Dairy Feed ----- | 9085 | 4.5 | 15.0 | 15.0 | Cottonseed meal, ground clipped oat by-product, ground screenings from wheat, oats, barley and flax, salt, molasses |
| International Climax Dairy Feed ----- | 9086 | 4.0 | 12.5 | 15.0 | Cottonseed meal, ground clipped oat by-product, ground screenings from wheat, oats, barley and flax, salt, molasses |
| International Cattle Feed ----- | 9087 | 5.0 | 25.0 | 10.0 | Cottonseed meal, old process linseed oil meal, ground and bolted screenings from wheat, oats, barley and flax, salt, molasses |
| International Jewel Dairy Feed ----- | 9088 | 4.5 | 16.0 | 20.0 | Cottonseed meal, ground oat straw, salt, molasses |
| International Hog Feed ----- | 9089 | 5.0 | 22.5 | 12.0 | Old process linseed oil meal, tankage, ground and bolted screenings from wheat, oats, barley and flax, charcoal, salt, molasses |
| International Dairy Feed ----- | 9092 | 4.5 | 17.5 | 14.0 | Cottonseed meal, ground clipped oat by-product, ground screenings from wheat, oats, barley and flax, salt, molasses |
| International Climax Hog Feed ----- | 9184 | 3.5 | 15.0 | 18.5 | Corn, old process linseed oil meal, tankage, ground and bolted screenings from wheat, oats, barley and flax, ground delinted cottonseed hulls, 5% charcoal, molasses |

⁴⁹ Succeeded by Indiana Elevator

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|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| International Feed Company, Minneapolis, Minn. I. S. F. Hog Feed and Charcoal ----- | 9429 | 5.0 | 20.0 | 13.5 | Old process linseed oil meal, tankage, ground and bolted screenings from wheat, oats, barley and flax, charcoal, salt, molasses |
| Interstate Feed Association, Detroit, Mich. Mormilk Ready Ration Dairy Feed ----- | 8945 | 4.5 | 20.0 | 15.0 | Cottonseed meal, ground screenings from wheat, oats, barley and flax, ground clipped oat by-product, salt, molasses |
| Superior Hog Feed ----- | 9315 | 3.5 | 15.0 | 18.5 | Corn, old process linseed oil meal, tankage, ground and bolted screenings from wheat, oats, barley and flax, ground delinted cottonseed hulls, charcoal, molasses |
| Jordan, Geo. M., Vincennes, Ind. G. M. J. Horse & Mule Chop ----- | 7619 | 3.5 | 9.0 | 6.0 | Corn, oats, alfalfa, salt, molasses |
| G. M. J. Producer Molasses Feed ----- | 8992 | 2.5 | 9.5 | 10.0 | Corn, oats, alfalfa, salt, molasses |
| G. M. J.—"Dairy Feed" ----- | 8994 | 5.5 | 18.0 | 13.0 | Wheat bran, wheat shorts, ground wheat screenings, corn feed meal, cottonseed meal, salt |
| Judson Creamery & Produce Company, North Judson, Ind. Palmo Hog Feed ----- | 8497 | 6.0 | 16.0 | 8.0 | Cleaning wheat middlings, palm oil from manufacture tin plate |
| King Manufacturing Company, North Vernon, Ind. King's High Protein Seed Meal ----- | 8185 | 6.0 | 23.0 | 18.0 | Ground and bolted screenings from clover seed and alfalfa seed, linseed oil meal |
| Kings High Protein Hog Feed Meal ----- | 8489 | 6.5 | 17.0 | 12.0 | Hominy meal, ground and bolted screenings from clover and alfalfa seed, linseed oil meal, tankage, ¼% salt |
| King High Protein Dairy Feed ----- | 8967 | 5.0 | 20.0 | 16.0 | Cottonseed meal, wheat bran, alfalfa meal, ground screenings from clover, alfalfa and timothy seed, 1% salt |
| King's High Protein Horse Feed ----- | 9402 | 4.0 | 14.0 | 18.5 | Hominy meal, corn feed meal, corn bran, alfalfa meal, wheat bran, ground screenings from clover, alfalfa and timothy seed, ½% salt |
| Kingman Grain & Milling Company, Kingman, Ind. Victor Ground Feed ----- | 5385 | 3.0 | 8.7 | 8.0 | Wheat, corn, oats, corn bran, corn feed meal, whole wheat screenings |
| Kornfalfa Feed Milling Company, Kansas City, Mo. Straight Alfalfa Molasses Feed ----- | 4679 | 1.0 | 9.0 | 25.0 | Alfalfa, molasses |
| Kornfalfa Kandy Feed ----- | 5094 | 2.5 | 9.0 | 12.0 | Corn, oats, alfalfa meal, molasses |
| Klimax Horse & Mule Feed ----- | 5244 | 1.5 | 8.0 | 17.0 | Corn, oats, alfalfa, molasses |
| Keno Horse & Mule Feed ----- | 5245 | 2.5 | 9.0 | 12.0 | Corn, oats, alfalfa, molasses |
| Kay Horse & Mule Feed ----- | 5604 | 2.0 | 10.0 | 17.0 | Corn, oats, alfalfa, molasses |
| Krause Milling Company, Chas. A., Milwaukee, Wis. Cream City Horse Feed ----- | 6679 | 1.5 | 10.0 | 14.0 | Corn, oats, alfalfa meal, salt, molasses |
| Badger Evergreen Feed ----- | 6724 | 0.5 | 11.5 | 30.0 | Alfalfa meal, salt, molasses |
| Blue Top Horse Feed ----- | 7517 | 1.0 | 10.0 | 16.0 | Corn, oats, alfalfa meal, salt, molasses |
| Krause Horse Feed ----- | 7967 | 2.5 | 10.0 | 10.0 | Corn, oats, alfalfa meal, salt, molasses |
| Badger Horse Feed ----- | 8080 | 2.0 | 10.0 | 12.0 | Corn, oats, alfalfa, salt, molasses |
| Crescent Horse Feed ----- | 8349 | 1.5 | 10.0 | 16.0 | Corn, oats, alfalfa, clipped oat by-product, salt, molasses |
| Krause Stock Feed ----- | 8006 | 4.5 | 10.0 | 12.0 | Hominy feed, corn germ meal, maize (corn) reddog flour, oat middlings, oat shorts, oat hulls, salt |
| Sweet Cud Dairy Feed ----- | 8959 | 1.2 | 14.0 | 20.0 | Cottonseed meal, alfalfa, salt, molasses |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Krause Milling Company, Chas. A., Milwaukee, Wis. Pulmor Horse Feed ----- | 9284 | 1.0 | 16.0 | 9.0 | Corn, oats, alfalfa meal, flax plant by-product, oat middlings, oat shorts, oat hulls, salt, molasses |
| Krause Hog Feed ----- | 9295 | 4.0 | 15.0 | 9.0 | Hominy feed, wheat bran, alfalfa, corn feed meal, tankage, wheat middlings, rye middlings, corn germ meal, peanut oil meal, velvet bean feed, salt |
| Badger Stock Feed ----- | 9296 | 4.5 | 10.0 | 12.0 | Corn, hominy feed, corn germ meal, maizo (corn) red dog flour, wheat bran, wheat middlings, rye middlings, ground screenings from wheat and rye not exceeding mill run, oat middlings, oat shorts, oat hulls, salt |
| Krause Dairy Feed ----- | 9297 | 5.0 | 24.0 | 13.0 | Corn distillers dried grains, brewers dried grains, cottonseed meal, corn gluten feed, old process linseed oil meal, hominy feed, corn germ meal, malt sprouts, wheat middlings, wheat bran, rye middlings, ground screenings from wheat and rye not exceeding mill run, salt |
| Cream City Dairy Feed ----- | 9298 | 3.5 | 19.0 | 15.0 | Corn gluten feed, cottonseed meal, hominy feed, brewers dried grains, old process linseed oil meal, wheat bran, wheat middlings, rye middlings, ground screenings from wheat and rye not exceeding mill run, velvet bean feed, oat middlings, oat shorts, oat hulls, salt |
| Lash Flour Mills, The Fred B., Farmersburg, Ind. Lashes Sweet Feed ----- | 8545 | 2.0 | 9.0 | 20.0 | Corn, oats, alfalfa meal, molasses |
| Linkhart & Son, J. W., North Vernon, Ind. Linkhart's Hog Feed ----- | 9294 | 4.0 | 15.0 | 7.0 | Hominy meal, corn feed meal, wheat bran, wheat middlings, digester tankage |
| Linton Mill Company, Linton, Ind. B. Mixed Feed ----- | 5805 | 3.0 | 13.0 | 12.0 | Wheat bran, shorts, corn bran, linseed meal, corn gluten feed, ground wheat screenings, clipped oat by-product, salt, molasses |
| Loogootee Milling Company, The, Loogootee, Ind. Falfa Syrup Feed ----- | 7283 | 2.0 | 10.5 | 12.0 | Corn, oats, wheat bran, corn bran, alfalfa meal, ground wheat screenings, salt, molasses |
| L. M. C. Pig Meal ----- | 8565 | 7.0 | 28.8 | 12.0 | Corn distillers dried grains, wheat middlings, corn feed meal, tankage |
| L. M. C. Horse Feed ----- | 8566 | 9.0 | 30.0 | 13.0 | Corn distillers dried grains, cottonseed meal |
| Loughry Bros. Milling & Grain Company, Monticello, Ind. Loughry's Hog Feed ----- | 9422 | 4.5 | 12.0 | 8.0 | Corn feed meal, digester tankage |
| Louisville Cereal Mill Company, Louisville, Ky. Nonesuch Mixed Feed ----- | 2561 | 7.8 | 11.6 | 6.5 | Wheat bran, hominy meal |
| Loy, W. J., Columbus, Ind. Dairy Feed ----- | 5238 | 3.2 | 9.0 | 10.0 | Corn, oats, wheat bran, wheat middlings, corn bran, corn feed meal, ground wheat screenings |
| Maginot Bros., Hammond, Ind. "Magnet" Horse Feed ----- | 3105 | 3.0 | 10.7 | 19.8 | Wheat bran, oats, barley, corn meal, alfalfa, linseed cake, salt |
| Martin, John D., Lafayette, Ind. Duree Dairy Feed ----- | 4650 | 3.0 | 10.0 | 20.0 | Corn and cob meal, (ground ear corn) oats, wheat bran, wheat middlings, cottonseed meal, alfalfa meal, linseed meal, 1/2% salt |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Martin, John D., Lafayette, Ind. Duree Hog Feed ----- | 9414 | 4.0 | 18.0 | 7.0 | | Wheat middlings, rye middlings, corn feed meal, wheat bran, linseed oil meal, blood meal, tankage, not over ½% salt |
| Mexico Roller Mills, Mexico, Ind. Black's Balanced Hog Feed ----- | 5053 | 3.5 | 10.0 | 7.0 | | Corn, wheat bran, wheat middlings, wheat shorts |
| Milan Mill & Elevator, Milan, Ind. Horse Feed & Fattener ----- | 6367 | 3.2 | 10.5 | 10.0 | | Corn, oats, rye, wheat bran, wheat middlings, corn bran, corn feed meal |
| Milan Milling Company, Milan, Ind. Horse Feed ----- | 7739 | 3.0 | 8.5 | 11.0 | | Corn, oats, rye, corn feed meal |
| Molassine Company of America, Boston, Mass. Molassine Meal ----- | 5718 | 0.5 | 7.0 | 7.0 | | Cooked spaghmun moss, molasses |
| Moutoux, P. & H., Evansville, Ind. "X L" Pig Meal ----- | 9427 | 3.0 | 14.5 | 16.5 | | Corn, corn feed meal, cottonseed meal, feeding tankage, wheat middlings with mill run ground wheat screenings, linseed meal, ½% salt |
| "X L" Dairy Feed ----- | 9428 | 2.5 | 10.0 | 17.0 | | Corn, corn feed meal, cottonseed meal, wheat bran, wheat middlings with mill run ground wheat screenings, corn bran, ½% salt |
| Mueller, E. P., Chicago, Ill. M V C O Dried Grains ----- | 8631 | 5.0 | 21.0 | 19.0 | | Barley malt, malt sprouts, corn distillers dried grains |
| Munn Brokerage Company, Little Rock, Ark. Tiger Brand Molasses Fattener ----- | 7399 | 0.7 | 4.0 | 21.0 | | Cottonseed hulls, cane molasses |
| McCoy & Garten, Indianapolis, Ind. Cracker Jack Horse Feed ----- | 5512 | 2.0 | 10.0 | 12.0 | | Corn, oats, alfalfa meal, salt, molasses |
| Green Pasture ----- | 5513 | 0.5 | 12.0 | 20.0 | | Alfalfa meal, salt, molasses |
| National Elevators, Branch, American Hominy Company, Indianapolis, Ind. A. Cow Feed ----- | 6557 | 2.5 | 9.0 | 16.0 | | Ground screenings from corn, oats, wheat and rye |
| National Feed Company, St. Louis, Mo. Alfalfa Molasses Feed ----- | 4260 | 1.0 | 10.0 | 20.0 | | Alfalfa meal, molasses |
| "Oat Hull Feed" ----- | 5832 | 2.7 | 6.7 | 32.6 | | Ground oat hulls |
| National Produce Company, Evansville, Ind. National Horse Feed ----- | 8059 | 2.0 | 9.0 | 16.0 | | Corn, oats, alfalfa meal, molasses |
| Neumann Company, John G., Evansville, Ind. Black Beauty Horse Feed ----- | 7988 | 2.0 | 9.0 | 16.0 | | Corn, oats, alfalfa meal, molasses |
| Newsome Feed & Grain Company, Pittsburgh, Pa. Special Palmo Midds ----- | 7624 | 6.0 | 15.0 | 7.0 | | Cleaning wheat middlings, cottonseed oil, palm oil |
| Palmo Mixed Feed ----- | 9173 | 6.0 | 10.0 | 16.0 | | Cleaning wheat middlings (with ground wheat screenings) cob meal, palm oil, (by-product from manufacture tin plate) |
| Special Palmo Mixed Feed ----- | 9365 | 5.0 | 10.0 | 18.0 | | Cleaning wheat middlings, ground wheat screenings, ground delinted cottonseed hulls, palm oil from manufacture tin plate |
| Palmo Midds ----- | 9391 | 7.0 | 16.0 | 9.0 | | Cleaning wheat middlings, ground wheat screenings, palm oil from manufacture tin plate |
| Northern Illinois Cereal Company, Lockport, Ill. Peru C. & O. Horse Feed ----- | 4116 | 3.0 | 8.5 | 12.0 | | Corn, oat middlings, oat shorts, oat hulls |
| Famous Feed ----- | 6514 | 3.0 | 9.0 | 12.0 | | Corn, oat middlings, oat shorts, oat hulls |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Odon Milling Company, Odon, Ind. Omco Dairy Feed ----- | 8384 | 3.2 | 13.7 | 11.0 | Cottonseed meal, wheat bran, wheat middlings, ground wheat screenings, corn bran, corn meal, 1% salt |
| Ohio Valley Seed Company, Evansville, Ind. Excello Horse Feed ----- | 5111 | 4.0 | 14.0 | 11.0 | Corn, oats, barley, wheat bran, cottonseed meal, brewers dried grains, alfalfa meal, molasses |
| Sunny South Horse & Mule Feed ----- | 7648 | 2.5 | 10.0 | 14.0 | Corn, oats, alfalfa, molasses |
| Big Deal Horse & Mule Feed ----- | 8341 | 2.0 | 8.0 | 16.0 | Corn, oats, alfalfa meal, corn bran, kafir corn bran, molasses |
| Olney Milling Company, Olney, Ill. General Purpose Perfection Feed ----- | 5901 | 2.8 | 10.3 | 10.5 | Corn meal, wheat bran, alfalfa meal, molasses |
| Omaha Alfalfa Milling Company, Omaha, Neb. Peerless Alfalmo Horse Feed ----- | 5715 | 2.0 | 10.0 | 12.0 | Corn, oats, alfalfa meal, molasses |
| Cream Alfalfa Dairy Feed No. 2 ----- | 6692 | 2.5 | 16.0 | 18.0 | Corn, wheat bran, cottonseed meal, alfalfa meal, molasses |
| Peerless Summer Feed ----- | 8778 | 2.0 | 10.0 | 12.0 | Oats, alfalfa meal, molasses |
| Omaha Special Horse Feed ----- | 8974 | 1.5 | 9.0 | 18.0 | Corn, oats, alfalfa meal, molasses |
| Peerless Horse Feed ----- | 8975 | 1.5 | 9.0 | 18.0 | Corn, oats, alfalfa meal, molasses |
| Alcorno Horse Feed ----- | 8976 | 1.5 | 9.0 | 18.0 | Corn, oats, alfalfa meal, molasses |
| Evergreen Horse Feed ----- | 8977 | 1.5 | 9.0 | 18.0 | Corn, oats, alfalfa meal, molasses |
| Green Meadow Dairy Feed ----- | 8978 | 0.5 | 10.0 | 25.0 | Alfalfa meal, molasses |
| Alfalmo ----- | 8979 | 0.5 | 10.0 | 20.0 | Alfalfa meal, molasses |
| Beauty Dairy Feed ----- | 8981 | 3.0 | 24.0 | 20.0 | Corn, wheat bran, alfalfa meal, cottonseed meal, linseed oilmeal |
| Cream Alfalfa Dairy No. 3 ----- | 8982 | 2.0 | 11.0 | 15.0 | Corn, alfalfa meal, molasses |
| Cream Alfalfa Dairy No. 1 ----- | 8983 | 3.0 | 20.0 | 18.0 | Corn, wheat bran, alfalfa meal, cottonseed meal, molasses |
| Perfection Horse Feed ----- | 8984 | 2.0 | 9.0 | 15.0 | Corn, oats, alfalfa meal, molasses |
| Park & Pollard Company of Illinois, The, Chicago, Ill. Stevens 44 Dairy Ration ----- | 8946 | 5.0 | 24.0 | 14.0 | Linseed oil meal, cottonseed meal, wheat bran with mill run ground wheat screenings, corn gluten feed, cocoanut oil meal, pea meal, corn distillers' grains, brewers' dried grains, ground barley, wheat middlings, hominy meal, corn germ meal, buckwheat middlings, corn feed meal, salt |
| Peters Mill Company, M. C., Omaha, Neb. Peters' King Corn Sugar Feed ----- | 4560 | 1.5 | 9.0 | 18.0 | Corn, oats, alfalfa meal, molasses |
| Peters' Alfalfa Queen Dairy Feed ----- | 4750 | 3.0 | 17.5 | 12.0 | Cottonseed meal, corn gluten meal, corn meal, alfalfa, molasses |
| Peters' Rabbit Mule Feed ----- | 6555 | 1.5 | 9.0 | 18.0 | Corn, oats, alfalfa, molasses |
| Peters' High-Score Alfalfa Molasses Feed ----- | 6815 | 0.5 | 10.0 | 26.0 | Alfalfa, molasses |
| Peters' Arab Horse Feed ----- | 9164 | 2.0 | 10.0 | 15.0 | Corn, oats, alfalfa, molasses |
| Peters' Re-Peter Horse Feed ----- | 9165 | 1.5 | 10.0 | 18.0 | Corn, oats, alfalfa, molasses |
| Peters' June Pasture Alfalfa & Molasses Feed ----- | 9166 | 0.5 | 10.0 | 26.0 | Alfalfa, molasses |
| Peters' Alfal-Fat Alfalfa & Molasses Feed ----- | 9167 | 0.5 | 10.0 | 26.0 | Alfalfa, molasses |
| Peters' Sell-A-Gen Horse & Mule Feed ----- | 9199 | 2.0 | 10.0 | 20.0 | Oats, alfalfa, molasses |
| Prairie State Milling Company, Chicago, Ill. Greenfield Brand Alfalfa & Molasses ----- | 6846 | 0.5 | 10.0 | 26.0 | Alfalfa meal, molasses |
| Emerald Horse Feed ----- | 7094 | 2.0 | 10.0 | 12.0 | Corn, oats, barley, alfalfa meal, molasses |
| American Horse Feed ----- | 7922 | 3.0 | 9.0 | 12.0 | Corn, rolled oats, rolled barley |
| Purina Mills, Branch, Ralston Purina Company, St. Louis, Mo. Purina Feed with Molasses ----- | 7867 | 1.7 | 9.3 | 13.0 | Corn, oats, alfalfa meal, 1% salt, molasses |
| Purina Dairy Feed ----- | 7869 | 3.5 | 20.0 | 16.5 | Cottonseed meal, brewers dried grains, corn gluten feed, alfalfa meal, 1% salt, molasses |
| Purina Fatena Feed ----- | 7871 | 2.5 | 12.0 | 10.0 | Corn, cottonseed meal, alfalfa meal, dried peat, ground wheat screenings, 1% salt, molasses |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Purina Mills, Branch, Ralston Purina Company, St. Louis, Mo. | | | | | |
| Purina O'Molene Feed ----- | 7874 | 3.2 | 9.7 | 8.0 | Corn, oats, alfalfa meal, 1% salt, molasses |
| Purina Feed ----- | 8477 | 3.2 | 11.0 | 12.0 | Corn, oats, brewers dried grains, corn feed meal, alfalfa meal, 1% salt, molasses |
| Purina Pig Chow ----- | 8743 | 3.2 | 14.0 | 9.0 | Corn feed meal, alfalfa meal, digester tankage, dried peat, 1% salt, molasses |
| Purina Cow Chow Feed ----- | 8744 | 3.7 | 24.0 | 16.0 | Cottonseed meal, corn gluten feed, brewers' dried grains, alfalfa meal, 1% salt, molasses |
| Purity Oats Company of Davenport, Davenport, Iowa | | | | | |
| Tom Boy Horse Feed ----- | 7083 | 2.0 | 9.0 | 18.0 | Corn, oats, cottonseed meal, alfalfa meal, oat middlings, oat shorts, oat hulls, molasses |
| Iowa Hog Feed ----- | 9039 | 4.0 | 10.0 | 12.7 | Wheat middlings, corn meal, hominy feed, brewers dried grains, oat middlings, oat shorts, oat hulls, 1% salt |
| Iowa Stock Feed ----- | 9040 | 4.0 | 10.0 | 12.7 | Wheat middlings, corn meal, hominy feed, brewers dried grains, oat middlings, oat shorts, oat hulls, 1% salt |
| Iowa Dairy Feed ----- | 9158 | 4.5 | 16.0 | 14.0 | Cottonseed meal, corn meal, hominy feed, brewers dried grains, oat middlings, oat shorts, oat hulls, 1% salt |
| Loyal Stock Feed ----- | 9399 | 4.0 | 10.0 | 14.0 | Corn gluten feed, corn feed meal, hominy feed, oat middlings, oat shorts, oat hulls, 1% salt |
| Quaker Oats Company, The, Chicago, Ill. | | | | | |
| Green Cross Horse Feed (Molasses Mixed Feed) ----- | 5610 | 2.5 | 10.0 | 12.0 | Corn, oats, alfalfa meal, cottonseed meal, oat middlings, oat shorts, oat hulls, molasses |
| Schumacher Special Horse Feed ----- | 5735 | 3.7 | 9.7 | 8.0 | Corn, oats, oat middlings, oat shorts, oat hulls, ½% salt |
| Vim Feed ----- | 6547 | 2.0 | 5.0 | 28.0 | Oat middlings, oat shorts, oat hulls |
| Mogul Mixed Molasses Feed ----- | 6714 | 3.0 | 10.0 | 15.0 | Corn, oats, cottonseed meal, alfalfa meal, ground screenings from wheat, rye and barley, oat middlings, oat shorts, oat hulls, molasses |
| Molac Molasses Dairy Feed ----- | 6864 | 3.0 | 12.0 | 19.0 | Cottonseed meal, ground screenings from wheat, rye and barley, clipped oat by-product, molasses |
| Maz-All Feed ----- | 6889 | 1.4 | 8.0 | 2.0 | Toasted corn flakes by-product |
| Shamrock Alfalfa Molasses Feed ----- | 6907 | 0.5 | 10.0 | 18.0 | Alfalfa meal, molasses |
| Big Mule Molasses Feed Mixture ----- | 7683 | 2.5 | 10.0 | 15.0 | Corn, oats, cottonseed meal, alfalfa meal, ground screenings from wheat, corn, oats, flax, barley and rye, oat middlings, oat shorts, oat hulls, ½% salt, molasses |
| Boss Feed ----- | 8228 | 3.0 | 8.0 | 12.0 | Corn, hominy feed, corn feed meal (by-product from manufacture of corn meal by degerminator process with partial extraction of oil), oat middlings, oat shorts, oat hulls, ½% salt |
| Sterling Feed ----- | 8229 | 3.2 | 10.0 | 10.0 | Corn, barley, hominy feed, corn feed meal (by-product from manufacture of corn meal, by degerminator process with partial extraction of oil) wheat flour, wheat middlings (with ground wheat screenings not exceeding mill run) cottonseed meal, ground puffed rice, ground puffed wheat, oat middlings, oat shorts, oat hulls, ½% salt |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Quaker Oats Company, The, Chicago, Ill. Victor Feed ----- | 8230 | 3.0 | 8.0 | 12.0 | Corn, hominy feed, corn feed meal (by-product from manufacture of corn meal by degerminator process with partial extraction of oil), oat middlings, oat shorts, oat hulls, ½% salt |
| White Diamond Feed ----- | 8231 | 3.2 | 8.0 | 9.0 | Corn, hominy feed, corn feed meal (by-product from manufacture of corn meal by degerminator process with partial extraction of oil), oat middlings, oat shorts, oat hulls, ½% salt |
| Red Star Feed ----- | 8232 | 3.2 | 8.0 | 9.0 | Corn, hominy feed, corn feed meal, (by-product from manufacture of corn meal by degerminator process with partial extraction of oil) oat middlings, oat shorts, oat hulls, ½% salt |
| Schumacher Feed ----- | 8234 | 3.2 | 10.0 | 10.0 | Corn, barley, hominy feed, corn feed meal, (by-product from manufacture of corn meal by degerminator process with partial extraction of oil) wheat flour, wheat middlings, with ground wheat screenings not exceeding mill run), cottonseed meal, ground puffed rice, ground puffed wheat, oat middlings, oat shorts, oat hulls, ½% salt |
| Blue Ribbon Dairy Feed ----- | 8281 | 5.0 | 25.0 | 14.0 | Hominy feed, corn feed meal (by-product from manufacture corn meal by degerminator process with partial extraction of oil), wheat bran, (with ground wheat screenings not to exceed mill run), corn distillers dried grains, cottonseed meal, new process linseed oil meal, oat middlings, oat shorts, oat hulls, ½% salt, molasses |
| Market Top Feed ----- | 8380 | 3.0 | 9.0 | 9.0 | Corn, barley, hominy feed, corn feed meal (by-product from manufacture of corn meal by degerminator process with partial extraction of oil), wheat flour, wheat middlings, (with ground wheat screenings not exceeding mill run), cottonseed meal, ground puffed wheat, ground puffed rice, oat middlings, oat shorts, oat hulls, molasses |
| Big Q Dairy Ration ----- | 8458 | 6.0 | 21.0 | 10.5 | Cottonseed meal, corn distillers' grains and solubles, corn gluten feed, linseed oil meal, corn feed meal, (by-product from manufacture of corn meal by degerminator process with partial extraction of oil), white wheat middlings, wheat bran (with ground wheat screenings not exceeding mill run), oat middlings, oat shorts, oat hulls, 1% salt |
| Vim Horse Feed ----- | 8819 | 2.5 | 12.0 | 15.0 | Corn, oats, alfalfa meal, cottonseed meal, oat middlings, oat shorts, oat hulls, ¾% salt, molasses |
| Golden Sweet Mule Feed ----- | 8872 | 2.0 | 9.0 | 18.0 | Corn, cottonseed meal, alfalfa meal, oat middlings, oat shorts, oat hulls, ½% salt, molasses |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Quaker Oats Company, The, Chicago, Ill. Quaker Dairy Feed with Molasses..... | 8898 | 5.5 | 16.0 | 16.0 | Cottonseed meal, corn distiller grains and solubles, palm kernel oil meal, ground screenings from wheat, barley, rye and oats, oat middlings, oat shorts, oat hulls, tricalcium phosphate, $\frac{3}{4}$ % salt, molasses | |
| Big Pig Hog Feed | 8949 | 4.0 | 13.5 | 13.0 | Wheat middlings, (with ground screenings not exceeding mill run), corn feed meal, ground barley, old process linseed oil meal, corn gluten feed, palm kernel oil meal, ground flax screenings, oat middlings, oat shorts, oat hulls, calcium phosphate, $\frac{1}{2}$ % salt | |
| Ralston Purina Company, St. Louis, Mo. Brown Mule Feed with Molasses | 7877 | 1.5 | 9.0 | 15.0 | Corn, oats, alfalfa meal, 1% salt, molasses | |
| XX Good Feed with Molasses | 7879 | 1.5 | 9.0 | 15.0 | Corn, oats, alfalfa meal, 1% salt, molasses | |
| Good Luck Feed with Molasses..... | 7880 | 1.5 | 9.0 | 15.0 | Corn, oats, alfalfa meal, 1% salt, molasses | |
| Rapier Sugar Feed Company, Owensboro, Ky. Rapier's Mixed Feed | 5623 | 4.9 | 16.6 | 8.5 | Wheat bran, shorts, ground screenings from wheat, oats, barley and flax | |
| Rapier's Molasses-Alfalfa Hog Feed | 6094 | 2.5 | 10.0 | 12.8 | Alfalfa meal, ground and bolted screenings from wheat, oats, barley and flaxseed, molasses | |
| Rapier's Big Four Horse & Mule Feed..... | 6528 | 2.0 | 9.0 | 12.0 | Corn, oats, alfalfa, 1% salt, molasses | |
| Rapier's Red Wing Horse and Mule Feed..... | 6738 | 2.0 | 9.0 | 12.0 | Corn, oats, alfalfa meal, 1% salt, cane molasses | |
| Rapier's Honey Meal | 6878 | 1.0 | 9.0 | 18.0 | Alfalfa meal, cane molasses | |
| Rapier's Pig Meal | 7072 | 2.5 | 12.0 | 12.0 | Alfalfa meal, corn feed meal, linseed meal, ground and bolted screenings from wheat, oats, barley and flaxseed, salt, cane molasses | |
| Rapier's Creamo Dairy Feed | 7589 | 3.5 | 16.5 | 16.0 | Cottonseed meal, distillers dried grains, alfalfa meal, linseed meal, ground and bolted wheat screenings, salt, molasses | |
| Rapier's Otene Horse & Mule Feed | 7696 | 2.0 | 9.0 | 12.0 | Corn, oats, alfalfa meal, 1% salt, molasses | |
| Rapier's Molasses Fat Maker | 8117 | 2.0 | 9.0 | 18.0 | Alfalfa meal, ground and bolted screenings from wheat, oats, barley and flaxseed, clipped oat by-product, 1% salt, molasses | |
| Schaefer, Karl H., Indianapolis, Ind. Schaefer's Special Filler for Malt | 7376 | 1.0 | 3.0 | 25.0 | Corn, corn bran, wheat bran, ground wheat screenings, cob meal | |
| Schaefer's Special Horse Feed | 7700 | 2.0 | 8.0 | 14.0 | Corn, oats, corn bran, alfalfa meal, salt, molasses | |
| Shellabarger Elevator Company, Decatur, Ill. Big S. Horse Feed | 7173 | 2.5 | 9.0 | 10.0 | Corn, oats, alfalfa, molasses | |
| Big "S." Dairy Feed | 8592 | 4.0 | 18.0 | 7.0 | Wheat bran, alfalfa meal, corn gluten feed, corn feed meal, linseed meal | |
| Simmons & Norris, Cincinnati, Ohio Simmons' More-Milk Dairy Feed | 6812 | 3.5 | 16.5 | 12.0 | Cottonseed meal, linseed meal, corn gluten feed, ground and bolted wheat screenings, clipped oat by-product, salt, molasses | |
| Simmons Molasses Chop | 8461 | 3.0 | 10.5 | 12.0 | Corn, oats, brewers dried grains, alfalfa meal, molasses | |
| Excello Hog Feed | 9337 | 4.5 | 19.0 | 6.0 | Corn feed meal, hominy feed, wheat middlings, old process linseed oil meal, digester tankage, corn gluten feed | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Slick & Company, L. E., Bloomington, Ill. Slick's Safety First Milkmaier Feed..... | 8818 | 3.0 | 18.0 | 16.0 | Alfalfa meal, corn feed meal, wheat bran, wheat middlings, cottonseed meal, cottonseed feed (cottonseed meal, cottonseed hulls) malt sprouts, brewers dried grains, 1% salt, molasses | |
| Slick's Safety First Hogmaier Feed | 8833 | 4.5 | 18.0 | 10.0 | Alfalfa meal, corn feed meal, wheat middlings, wheat bran, linseed oil meal, tankage, molasses | |
| Slick's Safety First Hog Fattener Feed | 8834 | 5.0 | 13.0 | 7.5 | Alfalfa meal, corn feed meal, wheat middlings, linseed oil meal, tankage, molasses | |
| Slick's Safety First Steer Fattner Mixed Feed..... | 9342 | 4.5 | 12.5 | 9.0 | Wheat bran, wheat middlings, cottonseed meal, corn feed meal, alfalfa meal, molasses | |
| Slick's Safety First Steer Developer Mixed Feed | 9343 | 3.0 | 15.0 | 13.0 | Wheat bran, cottonseed meal, corn feed meal, alfalfa meal, molasses | |
| Southern Seed Company, Louisville, Ky. Atlas Horse & Mule Feed | 4510 | 2.5 | 10.0 | 12.0 | Corn, oats, alfalfa, hominy meal, cottonseed meal, wheat bran, wheat middlings, ½% salt, molasses | |
| Atlas Alfalfa and Molasses | 4722 | 1.0 | 10.0 | 25.0 | Alfalfa, molasses | |
| Economy Horse and Mule Feed | 4745 | 2.5 | 9.0 | 12.0 | Corn, oats, wheat bran, alfalfa, clover hay, clipped oat by-product, ½% salt, molasses | |
| Indiana Atlas Dairy Feed | 5422 | 4.0 | 18.0 | 12.0 | Wheat bran, corn meal, cottonseed meal, alfalfa, brewers dried grains, distillers dried grains, ½% salt, molasses | |
| Indiana Economy Dairy Feed | 5423 | 3.0 | 16.0 | 12.0 | Wheat bran, corn meal, cottonseed meal, alfalfa meal, clover meal, brewers dried grains, distillers dried grains, clipped oat by-product, ½% salt, molasses | |
| Econo Horse and Mule Feed | 8375 | 2.5 | 9.0 | 20.0 | Corn, oats, alfalfa meal, clover meal, cottonseed meal, ground cottonseed hulls, flax plant by-product, ½% salt, molasses | |
| Eagle Horse & Mule Feed | 8548 | 2.0 | 9.0 | 20.0 | Corn, oats, alfalfa meal, clover meal, brewers dried grains, clipped oat by-product, ground cottonseed hulls, flax plant by-product, ½% salt, molasses | |
| Economy Dairy Feed | 8817 | 3.0 | 16.0 | 22.0 | Brewers dried grains, alfalfa meal, clover meal, cottonseed meal, flax plant by-product, ground cottonseed hulls, clipped oat by-product, ½% salt, molasses | |
| Econo Dairy Feed | 8897 | 3.0 | 16.0 | 22.0 | Brewers dried grains, alfalfa meal, clover meal, cottonseed meal, ground cottonseed hulls, clipped oat by-product, flax plant by-product, ½% salt, molasses | |
| Atlas Hog Feed | 8995 | 3.5 | 12.0 | 12.0 | Wheat shorts, wheat bran, corn feed meal, alfalfa meal, tankage, ½% salt | |
| Eagle Dairy Feed | 9095 | 2.0 | 12.0 | 26.0 | Brewers dried grains, alfalfa meal, clover meal, cottonseed meal, ground cottonseed hulls, clipped oat by-product, flax plant by-product, ½% salt, molasses | |
| Spink Milling Company, The, Washington, Ind. Spink's Standard Horse Feed | 7454 | 3.5 | 9.5 | 8.0 | Corn, oats, wheat bran, corn bran, ground wheat screenings | |
| Steinmesch Feed & Poultry Supply Company, St. Louis, Mo. Steinmesch's Alfalfa Cow Feed | 770 | 3.0 | 12.0 | 7.0 | Grains, seeds, alfalfa hay, molasses | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Sugarine Company, The, Peoria, Ill. Sugarine Dairy Feed ----- | 8284 | 3.5 | 16.5 | 14.0 | Cottonseed meal, corn gluten feed, ground and bolted wheat screenings, clipped oat by-product, corn distillers dried grains and solubles, salt, molasses | |
| Sugarine Horse Feed, with Alfalfa ----- | 8285 | 2.5 | 10.0 | 12.0 | Corn, oats, barley, alfalfa, distillers corn solubles, salt, molasses | |
| Sugarine Horse & Mule Feed ----- | 8286 | 2.5 | 9.0 | 12.0 | Corn, oats, corn distillers dried grains and solubles, oat middlings, oat shorts, oat hulls, salt, molasses | |
| Suco Fat Maker ----- | 8287 | 3.5 | 10.0 | 12.0 | Corn, oats, corn distillers dried grains and solubles, clipped oat by-product, salt, molasses | |
| Ideal Sugared Feed ----- | 9044 | 2.5 | 12.0 | 14.0 | Cottonseed meal, corn distillers dried grains and solubles, palm kernel meal, clipped oat by-product, ground and bolted wheat screenings, calcium carbonate, salt, molasses | |
| Suco Dairy Feed ----- | 9045 | 8.0 | 25.0 | 16.0 | Cottonseed meal, corn gluten feed, corn distillers dried grains and solubles, clipped oat by-product, palm kernel meal, calcium carbonate, salt | |
| Sugarine Hog Meal ----- | 9102 | 4.0 | 18.0 | 14.0 | Corn germ meal, corn feed meal, corn distillers dried grains and solubles, alfalfa meal, linseed meal, blood flour, palm kernel meal, calcium carbonate, salt, molasses | |
| Summitt, L. C., Vincennes, Ind. Summitt's Horse Feed ----- | 7726 | 2.0 | 8.0 | 14.0 | Corn, oats, alfalfa meal, salt, molasses | |
| Tarkio Molasses Feed Company, Kansas City, Mo. Tarkio Molasses Feed ----- | 7007 | 2.0 | 9.0 | 8.0 | Corn, wheat bran, ground and bolted screenings from wheat, barley and flaxseed, charred peat, cane molasses | |
| Tarkio Sugared Molasses Fattener ----- | 8889 | 2.5 | 17.0 | 16.7 | Wheat bran, cottonseed feed, cottonseed meal, cottonseed hulls, ground corn, charred peat, cane molasses | |
| Teel Milling Company, Owensville, Ind. Daisy Feed ----- | 6137 | 3.0 | 14.0 | 8.0 | Wheat bran, middlings, crushed wheat screenings, corn bran | |
| Ubiko Milling Company, The, Cincinnati, Ohio Ubiko Horse and Stock Feed ----- | 6861 | 6.0 | 16.0 | 9.0 | Wheat bran, wheat middlings, hominy meal, brewers dried grains, old process linseed meal | |
| Unions Grains, Ubiko, Biles Ready Dairy Ration ----- | 9058 | 5.0 | 24.0 | 10.0 | Fourx distillers dried grains, choice cottonseed meal, old process linseed meal, white wheat middlings, winter wheat bran, hominy meal, corn germ meal, corn gluten feed, brewers dried grains, barley malt sprouts, ½% salt | |
| Union Grain & Feed Company, The, Anderson, Ind. Union Horse Feed ----- | 7151 | 2.5 | 8.5 | 11.0 | Corn, oats, alfalfa, molasses | |
| Union Dairy Feed ----- | 8835 | 2.7 | 16.5 | 20.0 | Cottonseed meal, alfalfa meal, sorghum bagasse meal, corn feed meal, ground screenings from wheat, corn, oats, ½% salt, molasses | |
| Union Hog Feed ----- | 9421 | 4.0 | 21.0 | 9.0 | Corn feed meal, corn gluten meal, wheat bran, wheat middlings and ground wheat screenings, old process linseed oil meal, digester tankage, corn bran, molasses | |
| Daisy Dairy Feed ----- | 9424 | 2.7 | 11.5 | 20.0 | Cottonseed meal, alfalfa meal, sorghum bagasse meal, corn feed meal, ground screenings from wheat, corn and oats, ½% salt, molasses | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| United States Stock Food Company, Kansas City, Mo. Eagle Brand Horse & Mule Feed ----- Eagle Brand Alfalfa—Molasses Feed ----- | 4954 6063 | 3.5 1.0 | 10.0 9.0 | 12.0 16.0 | Corn, oats, alfalfa, molasses Alfalfa meal, molasses | |
| Walsh & Company, James, Lawrenceburg, Ind. Kuhmele ----- | 8803 | 6.0 | 21.8 | 16.1 | Corn, wheat middlings, cottonseed meal, brewers dried grains, alfalfa meal, salt | |
| Morlac ----- | 8914 | 6.0 | 21.8 | 16.1 | Corn, corn distillers dried grains, wheat bran, wheat middlings, brewers dried grains, alfalfa meal, cottonseed meal, salt | |
| Morlac "B" ----- | 9181 | 6.0 | 21.8 | 16.1 | Corn, corn distillers dried grains, ground barley screenings, brewers dried grains, alfalfa meal, cottonseed meal, salt | |
| Morlac "C" ----- | 9261 | 5.0 | 21.0 | 17.0 | Corn, corn distillers dried grains, alfalfa meal, brewers dried grains, cottonseed meal, ground barley screenings, salt | |
| Morlac "D" ----- | 9262 | 3.3 | 15.0 | 26.3 | Brewers dried grains, ground barley screenings, wheat middlings, corn distillers dried grains, cottonseed meal, alfalfa meal, salt | |
| Kuhmele "B" ----- | 9350 | 5.5 | 21.8 | 19.5 | Corn, wheat middlings, cottonseed meal, brewers dried grains, alfalfa meal, salt | |
| Walsh Hog Feed ----- | 9387 | 5.0 | 23.5 | 18.5 | Wheat middlings, clover meal, corn germ meal, alfalfa meal, corn distillers dried grains, linseed oil meal, tankage, salt | |
| Wash-Co. Alfalfa Mixed Feed & Milling Company, Fort Calhoun, Neb. Wash-Co. Horse and Mule Feed ----- | 3755 | 2.0 | 10.0 | 12.0 | Corn, oats, alfalfa meal, salt, molasses | |
| Alfalgreen ----- | 3839 | 0.5 | 12.0 | 20.0 | Alfalfa meal, 1% salt, molasses | |
| Butlers Strong Horse Feed ----- | 6875 | 2.0 | 9.0 | 25.0 | Corn, oats, alfalfa, molasses | |
| Special Horse Feed ----- | 8278 | 2.0 | 10.0 | 12.0 | Corn, oats, alfalfa meal, molasses | |
| Weiss Alfalfa Stock Food Company, The Otto, Wichita, Kansas The Otto Weiss Alfalfa Stock Food ----- | 2983 | 3.5 | 11.0 | 14.0 | Alfalfa, corn chop, wheat bran, shorts, linseed oil meal, salt | |
| The Otto Weiss Alfalfa & Corn Chop ----- | 3000 | 3.0 | 11.0 | 14.0 | Alfalfa, crushed corn | |
| Western Grain Products Company, West Hammond, Ill. Hammond Horse Feed ----- | 4864 | 2.8 | 12.0 | 11.0 | Corn, oats, barley, linseed meal, ground screenings from wheat, corn, oats and barley, $\frac{3}{10}$ % salt, molasses | |
| Special Hammond Dairy Feed ----- | 7347 | 3.5 | 15.5 | 12.0 | Cottonseed meal, distillers dried corn grains, malt sprouts, ground clipped oat by-product, ground screenings from wheat, corn, oats and barley, salt, molasses | |
| Calumet Alfalfa Horse Feed ----- | 8327 | 2.5 | 10.0 | 15.0 | Corn, rolled oats, alfalfa meal, linseed meal, salt, molasses | |
| Calumet Dairy Feed ----- | 9236 | 4.6 | 20.0 | 14.8 | Corn, wheat bran, cottonseed meal, corn gluten feed, brewers dried grains, ground wheat screenings, ground clipped oat by-product, salt | |
| Hammond Dairy Feed ----- | 9417 | 3.5 | 16.5 | 14.2 | Cottonseed meal, corn distillers grains, malt sprouts, ground clipped oat by-product, ground screenings from wheat, corn, oats and barley, ground cocoa shells, salt, molasses | |
| Wiedlocher & Sons, Springfield, Ill. Wiedlochers' Faultless Horse Feed ----- | 8450 | 3.0 | 10.0 | 10.0 | Corn, oats, alfalfa meal, $\frac{1}{2}$ % salt, molasses | |
| Wiedlochers' Congress Horse Feed ----- | 8451 | 3.0 | 9.0 | 7.0 | Corn, oats, barley, $\frac{1}{2}$ % salt | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Wilkinson & Company, T. B., Knightstown, Ind. Combination Dairy Feed ----- | 7654 | 3.0 | 11.0 | 10.0 | Oats, rye, corn and cob meal (crushed ear corn) cottonseed meal, salt |
| Wood, Stubbs & Company, Louisville, Ky. Red Mill Molasses Feed ----- | 7107 | 2.0 | 9.0 | 15.0 | Corn, oats, corn meal, alfalfa meal, salt, cane molasses |
| CALF MEALS | | | | | |
| American Milling Company, Peoria, Ill. Sucrene Calf Meal ----- | 6722 | 4.0 | 20.0 | 3.0 | Wheat middlings, corn meal, linseed meal, malt flour, soluble starch from corn, dried skim milk, soluble blood flour, bone meal |
| Arady Farms Milling Company, Chicago, Ill. Arady (R. K. D.) Calf Meal ----- | 9259 | 5.0 | 25.0 | 7.0 | Wheat flour, malt flour, cottonseed meal, linseed oil meal, oat meal, powdered milk, ½% salt |
| Blatchford Calf Meal Company, Waukegan, Ill. Blatchford's Calf Meal ----- | 8722 | 5.0 | 24.0 | 6.7 | Fenugreek, anise, locust bean meal, flaxseed, wheat flour, blood flour, barley meal, malt sprout meal, bean meal, pea meal, rice polish, old process linseed oil meal, cocoa shell meal, cocoanut meal, cottonseed meal, dried milk, salt |
| Butler & Company, Edw. J., Chicago, Ill. Butler's Station Calf Meal ----- | 7989 | 4.0 | 32.0 | 3.5 | Blood flour, barley flour, linseed oil meal, reddog flour |
| Hales & Edwards Company, Chicago, Ill. Red Horn Calf Meal ----- | 8739 | 5.0 | 18.0 | 6.0 | Dried buttermilk, oat flour, barley flour, reddog flour, corn flour, old process linseed oil meal, alfalfa leaf flour, dextrose, not over 1% calcium carbonate, ½% salt |
| International Stock Food Company, Minneapolis, Minn. International Grofast Calf Meal ----- | 6380 | 5.0 | 25.0 | 10.0 | Fenugreek seed, locust bean meal, linseed oil meal, reddog flour, ground screenings from wheat, oats, barley, flax |
| International Sugar Feed Company, Minneapolis, Minn. International Grofast Calf Meal ----- | 9091 | 5.0 | 25.0 | 10.0 | Fenugreek seed, locust mean, linseed oil meal, ground screenings from wheat, oats, barley, flax |
| Krause Milling Company, Chas. A., Milwaukee, Wis. Krause Calf Meal ----- | 9030 | 3.5 | 30.0 | 7.0 | Blood flour, old process linseed oil meal, hominy feed, wheat middlings, wheat reddog flour |
| Martin & Company, John C., Mineral Point, Wis. Martin's Calf Meal ----- | 5047 | 6.0 | 26.0 | 6.0 | Fenugreek, cottonseed meal, wheat germ middlings, wheat flour, corn meal, linseed oil meal, flaxseed, blood meal, charcoal, salt |
| Maumee Valley Mills, New Haven, Ind. Star Calf Feed ----- | 9325 | 5.0 | 24.0 | 6.0 | Blood meal, linseed oil meal, hominy feed meal, reddog flour, wheat middlings, cottonseed meal, copra oil meal, salt |
| Peters Mill Company, M. C., Omaha, Neb. Peters' Submilk Calf Meal ----- | 8536 | 3.0 | 22.0 | 8.0 | Linseed oil meal, alfalfa meal, corn feed meal, blood meal, reddog flour |
| Prussian Remedy Company, St. Paul, Minn. Prussian Calf Meal ----- | 7801 | 5.5 | 25.0 | 5.5 | Anise seed, fenugreek seed, lime, sodium chloride, locust bean meal, oat meal, blood meal, corn meal, cottonseed meal, linseed meal, corn gluten meal, wheat flour, rye middlings |
| Purina Mills, Branch, Ralston Purina Company, St. Louis, Mo. Purina Calf Chow ----- | 7872 | 4.0 | 33.0 | 3.5 | Hominy feed, wheat flour, blood flour, linseed meal |
| Quaker Oats Company, The, Chicago, Ill. Schumacher Calf Meal ----- | 8942 | 8.0 | 18.0 | 4.0 | Oat meal, wheat meal, ground flaxseed, milk albumen, old process linseed oil meal, ½% bicarbonate of soda |
| Roberts Veterinary Company, Dr. David, Waukesha, Wis. Dr. David Roberts Calf Meal ----- | 6023 | 7.0 | 25.0 | 6.5 | Sassafras, salt, chalk, charcoal, locust bean meal, blood meal, flaxseed oil cake meal, oat meal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Ryde & Company, Chicago, Ill. Rydes Cream Calf Meal ----- | 8856 | 5.0 | 25.0 | 6.0 | Fenugreek, anise, cottonseed meal, wheat flour, blood flour, flaxseed meal, hominy feed, beans, locust bean meal, lentils, cocoa shell meal, salt |
| Simmons & Norris, Cincinnati, Ohio. Simmons' Butter-Fat Calf Meal ----- | 6810 | 5.0 | 25.0 | 6.0 | Fenugreek, anise seed, wheat flour, cottonseed meal, flaxseed meal, carob beans, bean meal, lentils, cocoa shells, salt |
| Slick & Company, L. E., Bloomington, Ill. Slick's Safety First Calf Meal ----- | 9344 | 4.0 | 30.0 | 7.0 | Wheat middlings, reddog flour, corn feed meal, linseed oil meal, fine blood meal |
| Sugarine Company, The, Peoria, Ill. Sugarine Calf Meal ----- | 6796 | 4.0 | 20.0 | 3.0 | Wheat middlings, corn meal, linseed meal, malt flour, soluble starch from corn, dried skim milk, soluble blood flour, bone meal |
| Sugarota Calf Meal Company, The, Winona, Minn. Sugarota Calf Meal ----- | 6174 | 6.0 | 25.0 | 6.0 | Cottonseed meal, old process linseed meal, ground wheat, ground malt |
| Ward & Company, Montgomery, Chicago, Ill. Pilgrim's Calf Meal ----- | 3034 | 5.0 | 24.0 | 5.0 | Locust bean meal, wheat flour, flaxseed, cottonseed meal, beans, lentils |
| Wilbur Stock Food Company, Milwaukee, Wis. Wilbur's Calf Meal ----- | 6618 | 2.0 | 10.0 | 10.0 | Gentian, fenugreek, anise seed, blood root, elecampane, ginger, quassia, elm bark, bicarbonate of soda, charcoal, salt, ground screenings from flax, wheat, rye |
| Williams & Son, F. I., North Adams, Mich. "Williams Calf Meal" ----- | 7338 | 1.2 | 13.5 | 6.2 | Anise, linseed oil meal, blood meal, toasted corn flakes by-product |
| POULTRY AND SCRATCH FEED | | | | | |
| Acme-Evans Company, Indianapolis, Ind. E-Z. Chick Feed ----- | 5641 | 2.5 | 10.0 | 5.0 | Wheat, corn, millet seed, steel cut oats, charcoal, mica grit |
| E-Z. Scratch Feed ----- | 5721 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, sunflower seed, charcoal, oyster shells, granite and mica grit |
| Acme Scratch Feed ----- | 6292 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oyster shells, limestone grit |
| Acme Chick ----- | 6493 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, carbonate of lime (limestone) |
| Alfocorn Milling Company, East St. Louis, Ill. Alfocorn Hen Feed ----- | 5339 | 3.5 | 10.0 | 4.0 | Wheat, corn, kafir, milo maize, sunflower seed |
| Diamond "D" Hen Feed (With Grit) ----- | 5990 | 3.5 | 10.0 | 4.0 | Wheat, corn, kafir, milo maize, sunflower seed, carbonate of lime (limestone) |
| Alfocorn Chick Feed ----- | 6730 | 3.5 | 10.0 | 4.0 | Corn, kafir, millet seed, whole wheat screenings |
| Wish-Bone Scratch Feed ----- | 9078 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, wild buckwheat, sunflower seed |
| Wish-Bone Chick Feed ----- | 9079 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, pigeon grass |
| Wish-Bone Scratch Feed With Grit ----- | 9140 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, wild buckwheat, sunflower seed, carbonate of lime (limestone) |
| Amendt Milling Company, Monroe, Mich. Amco Chick Feed ----- | 5022 | 2.5 | 10.0 | 5.0 | Corn, kafir, milo maize, hulled oats, millet seed, whole wheat screenings, limestone and quartz grit |
| American Hominy Company, Indianapolis, Ind. Homco Chick Feed ----- | 6568 | 2.5 | 9.0 | 5.0 | Wheat, corn, kafir, millet, hen-e-ta grit, (sodium, lime, silica, phosphorus compounds) |
| Homeo Poultry Developer ----- | 8491 | 3.0 | 11.0 | 4.0 | Wheat, corn, kafir, homeoline, (corn germ meal) buckwheat |
| Homeo Scratch Feed ----- | 8509 | 2.5 | 10.5 | 5.0 | Wheat, corn, kafir, barley, buckwheat, sunflower seed, homeoline (corn germ meal) |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

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|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| American Hominy Company, Indianapolis, Ind. Standard Scratch Feed With Grit ----- | 8754 | 2.5 | 9.0 | 6.0 | Wheat, corn, kafir, oats, barley, whole wheat screenings, carbonate of lime (limestone) |
| Standard Scratch Feed ----- | 8755 | 2.5 | 9.0 | 6.0 | Wheat, corn, kafir, oats, barley, whole wheat screenings |
| Hexite Scratch Feed With Grit ----- | 8756 | 2.5 | 10.0 | 7.0 | Wheat, corn, kafir, oats, barley, homcoline (corn germ meal) sunflower seed, carbonate of lime (limestone) |
| Hexite Scratch Feed ----- | 8757 | 2.5 | 10.0 | 7.0 | Wheat, corn, kafir, oats, barley, homcoline (corn germ meal) sunflower seed |
| Homco Dry Mash ----- | 8795 | 5.0 | 15.0 | 9.0 | Homcoline (corn germ meal) homco hominy feed, wheat bran, wheat middlings, linseed meal, meat scraps, alfalfa, molasses |
| Homco Chick Feed ----- | 9274 | 3.0 | 9.0 | 3.0 | Shrivelled wheat, corn, kafir, millet seed |
| American Milling Company, Peoria, Ill. Tip Top Chick Feed ----- | 5664 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, pigeon grass seed |
| Tip Top Chick Feed With 5% Grit ----- | 5665 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, pigeon grass seed, marble grit |
| Suerene Chick Feed ----- | 6560 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet |
| Suerene Chick Feed with 5% Grit ----- | 6561 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, marble grit |
| Cluck Cluck Scratch Feed ----- | 8241 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed |
| Suerene Scratch Feed ----- | 8242 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed |
| Tip Top Scratch Feed ----- | 8243 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed |
| Tip Top Scratch Feed, With 5% Grit----- | 8244 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed, marble grit |
| Suerene Scratch Feed, With 5% Grit----- | 8245 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, marble grit |
| Cluck Cluck Scratch Feed, With 5% Grit----- | 8253 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, marble grit |
| Suerene Poultry Mash ----- | 8730 | 3.5 | 18.0 | 12.0 | Corn feed meal, alfalfa meal, meat scraps, corn distillers dried grains, wheat bran, linseed meal, palm kernel meal, calcium carbonate, salt |
| Suerene Pigeon Feed ----- | 9051 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, peas, buckwheat, sunflower seed |
| Aracady Farms Milling Company, Chicago, Ill. Sunkist Poultry Feed ----- | 8801 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, whole wheat screenings, wild buckwheat, sunflower seed |
| Atlantic Poultry Feed ----- | 9034 | 2.0 | 9.0 | 5.0 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed, wild buckwheat, whole wheat screenings |
| Atlantic Poultry Feed With Grit, Shell and Charcoal ----- | 9035 | 2.0 | 9.0 | 5.0 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed, wild buckwheat, whole wheat screenings, 1% charcoal, 5% oyster shell, 5% limestone grit |
| Sunkist Poultry Feed With Grit, Shell, Charcoal ----- | 9260 | 2.0 | 9.0 | 5.0 | Wheat, corn, kafir, oats, barley, wild buckwheat, whole wheat screenings, 1% charcoal, 5% oyster shell, 5% limestone grit |
| Aracady Farms Milling Company, Rondout, Ill. Aracady (R. K. D.) Poultry Feed ----- | 7519 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed |
| Aracady (R. K. D.) Poultry Feed—With Grit—Shell—Charcoal ----- | 7520 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed, 1% charcoal, 3% oyster shell, 3% limestone grit |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Aready Farms Milling Company, Rondout, Ill. Aready (R. K. D.) Chick Feed, With Grit—Charcoal ----- | 7521 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, hulled oats, 1% charcoal, 6% limestone grit |
| Aready (R. K. D.) Chick Feed ----- | 7522 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, hulled oats |
| Aready (R. K. D.) Baby Chick Feed ----- | 7523 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, hulled oats |
| Aready (R. K. D.) Baby Chick Feed With Grit—Charcoal ----- | 7524 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, hulled oats, 1% charcoal, 6% limestone grit |
| Ashbrook Company, The J. S., Mattoon, Ill. Peerless Scratch Feed ----- | 4181 | 3.6 | 10.0 | 6.0 | Wheat, corn, kafir, oats, buckwheat, sunflower seed, linseed meal |
| Peerless Chick Feed ----- | 5895 | 3.5 | 10.5 | 6.0 | Wheat, corn, kafir, steel cut oats, millet seed |
| Diamond A. Scratch Feed ----- | 7904 | 2.5 | 9.0 | 6.0 | Wheat, corn, kafir, barley, milo, oats, buckwheat, sunflower seed |
| iDiamond A. Scratch Feed (With Grit)----- | 7941 | 2.5 | 9.0 | 6.0 | Wheat, corn, kafir, barley, milo maize, oats, buckwheat, sunflower seed, 5% quartz grit |
| Peerless Scratch Feed With Grit ----- | 8043 | 3.0 | 10.0 | 6.0 | Wheat, corn, kafir, milo, oats, buckwheat, sunflower seed, linseed oil cake, oyster shell, quartz grit |
| Diamond A. Chick Feed ----- | 9386 | 3.0 | 10.0 | 6.0 | Corn, kafir, milo, millet seed |
| Badenoch Company, J. J., Chicago, Ill. Eg-a-day Meat-Cereal Mash ----- | 4496 | 4.0 | 15.0 | 8.0 | Wheat bran, wheat middlings, alfalfa meal, oat meal, corn meal, beef scraps, linseed oil meal, shells |
| C-er-lay Special Poultry Feed ----- | 6100 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, barley, rye, wild buckwheat, sunflower seed, charcoal, limestone grit |
| Sunflower Pigeon Feed With Grit ----- | 6647 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hemp seed, peas, milo maize, millet, buckwheat, charcoal, limestone grit |
| Sunflower Pigeon Feed No Grit ----- | 6648 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hemp seed, peas, milo maize, millet, buckwheat, charcoal |
| C-er-lay Poultry Feed With Grit ----- | 8765 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, milo, buckwheat, sunflower seed, oyster shells, limestone grit |
| C-er-lay Poultry Feed No Grit ----- | 8766 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, milo, buckwheat, sunflower seed |
| Daily Egg Poultry Feed No Grit ----- | 8768 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, milo, whole screenings from wheat and barley, sunflower seed |
| C-er-lay Developing Feed No Grit ----- | 8769 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, oats, milo, millet seed, hulled oats |
| Daily Egg Poultry Feed With Grit ----- | 8770 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, milo, whole screenings from wheat and barley, sunflower seed, oyster shells, limestone grit |
| C-er-lay Developing Feed With Grit ----- | 8771 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, oats, milo, millet seed, hulled oats, limestone grit |
| C-er-lay Fine Chick Feed With Grit ----- | 8772 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, milo, millet seed, steel cut oats, hulled oats, limestone grit |
| C-er-lay Fine Chick Feed No Grit ----- | 8773 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, milo, millet seed, steel cut oats, hulled oats |
| Egspay Poultry Feed No Grit ----- | 8774 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, oats, barley, milo, wild buckwheat, sunflower seed, whole screenings from wheat and barley |
| Egspay Poultry Feed With Grit ----- | 8775 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, oats, barley, milo, wild buckwheat, sunflower seed, whole screenings from wheat and barley, oyster shells, limestone grit |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Barrett, J. C., South Bend, Ind. Barrett's Henola Dry Mash ----- | 6924 | 2.0 | 12.0 | 3.0 | Wheat bran, wheat middlings, corn meal, corn gluten meal, linseed oil meal, heneta grit (sodium, lime, silica, phosphorous compounds) |
| Bash & Company, Inc., C. E., Huntington, Ind. Busy Biddy Scratch Feed ----- | 5679 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, linseed oil meal |
| Busy Biddy Egg Mash & Chick Grower----- | 6102 | 3.0 | 17.5 | 7.0 | Wheat bran, wheat middlings, corn feed meal, alfalfa meal, linseed oil meal, meat scraps, charcoal, salt |
| Bash's Seed Store, Indianapolis, Ind. Bash's Scratch Feed ----- | 4479 | 2.0 | 9.0 | 7.0 | Corn, whole wheat screenings, cane seed, sunflower seeds, non-germinating garden seeds, charcoal, limestone grit, oyster shells |
| Bauermeister Company, Inc., Chas. W., Terre Haute, Ind. Bauermeister's Star Feed ----- | 2408 | 2.0 | 8.0 | 8.0 | Wheat, corn, kafir, millet seed |
| Bauermeister Scratch Feed ----- | 5215 | 2.0 | 9.0 | 5.0 | Wheat, corn, kafir, oats, hen-e-ta grit (sodium, lime, silica, phosphorous compounds) |
| Bauermeister's Chick Feed ----- | 5221 | 2.0 | 8.0 | 3.0 | Wheat, corn, kafir, steel cut oats, millet seed, hen-e-ta grit (lime, sodium, silica, phosphorous compounds) |
| Bauermeister Dry Mash ----- | 5302 | 2.0 | 12.0 | 5.0 | Wheat bran, wheat middlings, corn feed meal, linseed oil meal, corn gluten meal, hen-e-ta grit (sodium, lime, silica, phosphorous compounds) |
| Belt Elevator & Feed Company, Indianapolis, Ind. Mixed Hen Feed ----- | 5905 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, charcoal, oyster shell |
| Hen-O-La Mash ----- | 8045 | 2.0 | 10.0 | 5.0 | Wheat bran, wheat middlings, corn gluten feed, corn feed meal, hominy feed, linseed oil meal, ground wheat screenings, heneta grit (sodium, lime, silica, phosphorous compounds) |
| Berdan & Company, Toledo, Ohio Old Tavern Scratch Feed (With Grit) ----- | 3532 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed, charcoal, marble grit |
| Old Tavern Scratch Feed ----- | 5744 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, buckwheat, sunflower seeds |
| Old Tavern Chick Feed With Grit ----- | 6469 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains) charcoal, marble grit |
| Old Tavern Chick Feed Without Grit ----- | 6470 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains) charcoal |
| Big Four Elevator & Milling Company, Mattoon, Ill. Big 4 Scratch Feed ----- | 8583 | 3.6 | 10.0 | 6.0 | Wheat, corn, kafir, oats, buckwheat, sunflower seed, linseed meal |
| Bonner & Company, F. J., Lafayette, Ind. Bonner's Scratch Feed ----- | 8142 | 2.5 | 10.0 | 6.0 | Wheat, corn, kafir, oats, barley, sunflower seed |
| Boonville Milling Company, Boonville, Ind. Boone Poultry Feed ----- | 7193 | 2.5 | 9.5 | 5.0 | Wheat, corn, sorghum cane seed, sunflower seed |
| Boone Chick Feed ----- | 7433 | 3.0 | 8.5 | 4.0 | Wheat, corn, sorghum cane seed, sunflower seed, millet |
| Brizius Company, The Chas. W., Newburgh, Ind. Log Cabin Scratch Feed ----- | 7979 | 2.5 | 9.0 | 6.0 | Wheat, corn, kafir, barley, milo, oats, buckwheat, sunflower seed |
| Log Cabin Scratch Grains, With Grit----- | 8033 | 2.5 | 9.0 | 6.0 | Wheat, corn, kafir, barley, milo, oats, buckwheat, sunflower seed, quartz grit |
| Log Cabin Chick Feed ----- | 8515 | 3.0 | 10.0 | 6.0 | Wheat, corn, kafir, milo |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Brook Flour & Feed Mill, Brook, Ind. Rising Sun Poultry Feed ----- | 6536 | 2.0 | 9.0 | 6.0 | Wheat, corn, kafir, oats, millet seed, meat scraps, mica grit |
| Browning Milling Company, W. A., Evansville, Ind. Brownings Mxd Chicken Feed ----- | 6477 | 2.0 | 9.0 | 5.0 | Wheat, corn, oats, granite grit |
| Burrell & Morgan, Elkhart, Ind. Morgans Feed ----- | 5876 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seeds |
| Burge-Thomas Milling Company, Marion, Ind. ⁵⁰ Tip Top Scratch Feed ----- | 7340 | 2.5 | 9.0 | 5.0 | Wheat, corn, oats, barley, buckwheat, charcoal, oyster shells |
| Butler & Company, Edw. J., Chicago, Ill. Butler's Special Poultry Feed, "With Grit"---- | 6201 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, sunflower seed, shells, charcoal, mica grit |
| Butler's Special Poultry Feed, "No Grit"----- | 6202 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, oats, barley, sunflower seed, charcoal |
| Byrnes & Company, W. J., Chicago, Ill. Royal Meat Mash ----- | 4786 | 4.0 | 14.0 | 8.0 | Wheat bran, wheat middlings, kafir, corn meal, alfalfa meal, linseed oil meal, beef scraps, oyster shells |
| Royal Brand Poultry Feed ----- | 4787 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed, oyster shell, limestone grit |
| Daisy Chick Feed, With Grit ----- | 5065 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, millet, peas, limestone grit |
| Daisy Chick Feed ----- | 5066 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, millet, peas |
| Jewel Poultry Feed ----- | 5200 | 2.5 | 9.5 | 10.0 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed, oyster shell, mica grit |
| Royal Pigeon Feed ----- | 5789 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, hemp, peas, millet, buckwheat, mica grit |
| Royal Poultry Feed No Grit ----- | 6274 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, oats, barley, buckwheat, sunflower seed |
| Jewel Poultry Feed Without Grit ----- | 6934 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed |
| Cairo Milling Company, Cairo, Ill. Prize Poultry Feed ----- | 8457 | 3.5 | 10.0 | 6.0 | Wheat, corn, kafir, sunflower seed, whole wheat screenings |
| Callahan Company, The C., Lafayette, Ind. Purdue Line First Prize Chick Feed ----- | 6608 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hulled oats, millet |
| Purdue Line White Hen Scratch Feed----- | 6609 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, linseed oil cake |
| Carroll & Son, E. L., Decatur, Ind. Carrolls Chicken Feed ----- | 6786 | 3.0 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, milo maize, millet, sunflower seed |
| Carrolls Chick Feed With Grit ----- | 8408 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains) charcoal, marble grit |
| Carrolls Scratch Feed With Grit ----- | 8409 | 2.5 | 8.5 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, limestone grit |
| Chamberlain Company, F. B., St. Louis, Mo. Acorn Hen Feed ----- | 4849 | 3.5 | 10.0 | 6.0 | Wheat, corn, kafir, oats, barley, sunflower seed, whole screenings from wheat, oats and barley |
| Acorn Chick Feed ----- | 4850 | 3.5 | 10.0 | 6.0 | Wheat, corn, kafir, whole screenings from wheat, oats and barley |
| Premium Chick Feed ----- | 5965 | 3.5 | 10.0 | 6.0 | Wheat, corn, whole wheat screenings |
| Premium Hen Feed ----- | 5966 | 3.5 | 10.0 | 6.0 | Wheat, corn, barley, oats, sunflower seed, whole screenings from wheat, oats and barley |

⁵⁰ Succeeded by Thomas Milling Co.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Chamberlain Company, F. B., St. Louis, Mo. Chamberlain's Perfect Chick Feed ----- | 8255 | 2.5 | 10.0 | 6.0 | | Wheat, kafir, oat meal, millet, milo, field seeds from wheat screenings, meat, bone, charcoal, limestone grit |
| Chamberlain's Perfect Hen Feed ----- | 8526 | 3.5 | 11.0 | 4.0 | | Wheat, corn, kafir, milo, rolled oats, buckwheat seed, sunflower seed, meat, bone, charcoal |
| Chamberlain's Perfect Mash Egg Feed ----- | 8257 | 3.5 | 11.0 | 7.0 | | Corn, rolled oats, wheat bran, corn meal, alfalfa meal, cottonseed meal, linseed meal, meat, bone, charcoal, salt |
| Chapman-Doake Company, The, Decatur, Ill. Laymore Scratch Feed ----- | 8370 | 2.0 | 10.0 | 10.0 | | Wheat, corn, kafir, milo, oats, rye, sunflower seed |
| Diamond "F" Scratch Feed ----- | 8431 | 3.0 | 10.0 | 12.0 | | Wheat, corn, kafir, milo, oats, sunflower seed |
| Laymore Fine Chick ----- | 8660 | 2.0 | 10.0 | 9.0 | | Wheat, corn, millet seed, whole field seeds from wheat screenings, oyster shell |
| Chicago Heights Oil Mfg. Company, Chicago, Ill. "Prize" Scratch Feed With Grit ----- | 6335 | 2.5 | 10.0 | 5.0 | | Wheat, corn, barley, buckwheat, sunflower seed, charcoal, limestone grit |
| "Prize" Scratch Feed, No Grit ----- | 6336 | 2.5 | 10.0 | 5.0 | | Wheat, corn, barley, buckwheat, sunflower seeds, charcoal |
| Cincinnati Grain & Hay Company, Cincinnati, Ohio "No-Better" Poultry Feed ----- | 8595 | 2.5 | 10.0 | 4.0 | | Wheat, corn, kafir, barley, milo, buckwheat, sunflower seed |
| Citizens Hay & Grain Company, Indianapolis, Ind. Citizen's Scratch Feed ----- | 8865 | 5.0 | 10.0 | 5.0 | | Wheat, corn, kafir, oats, sunflower seed |
| City Feed Store, Plymouth, Ind. Plymouth Scratch Feed ----- | 7163 | 2.5 | 8.7 | 7.0 | | Wheat, corn, kafir, oats, millet seed, buckwheat, sunflower seed, oyster shells, charcoal |
| Plymouth Chick Feed ----- | 7541 | 2.5 | 9.0 | 5.0 | | Wheat, corn, kafir, millet, hulled oats, charcoal, oyster shell |
| Plymouth Egg Mash ----- | 7543 | 4.0 | 15.0 | 11.0 | | Wheat bran, wheat middlings, ground wheat screenings, hominy feed, alfalfa meal, meat scraps, cottonseed meal, charcoal, salt, oyster shell |
| Clover Leaf Flour Mills, Kokomo, Ind. Clover Leaf Egg Mash ----- | 8321 | 3.0 | 18.0 | 10.0 | | Corn, oats, wheat bran, wheat middlings, corn gluten feed, alfalfa meal, linseed oil meal, meat scraps, charcoal, molasses |
| Corno Mills Company, The, St. Louis, Mo. Corno Hen Feed ----- | 8971 | 3.0 | 10.0 | 3.5 | | Wheat, corn, kafir, barley, sunflower seed, ground wheat screenings |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. Thrift Chick Feed ----- | 8689 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet, steel cut oats |
| Thrift Scratch Feed ----- | 8690 | 3.0 | 11.0 | 5.0 | | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed |
| Star City Scratch Feed ----- | 9395 | 3.0 | 10.5 | 5.0 | | Corn, kafir, oats, barley, buckwheat, sunflower seed |
| Star City Chick Feed ----- | 9396 | 2.5 | 9.5 | 5.0 | | Corn, kafir, millet, steel cut oats |
| Cyphers Incubator Company, Buffalo, N. Y. Fattening Mash ----- | 4201 | 3.0 | 11.0 | 5.0 | | Kafir, wheat bran, wheat shorts, red-dog flour, corn meal, alfalfa meal |
| Complete Chick Food ----- | 7626 | 2.5 | 9.5 | 4.0 | | Wheat, corn, kafir, milo maize, millet, whole wheat screenings, limestone grit |
| Standard Chick Food ----- | 7627 | 2.5 | 9.5 | 4.0 | | Wheat, corn, kafir, milo maize, millet, whole wheat screenings |
| Complete Developing Food ----- | 7628 | 2.5 | 9.5 | 4.0 | | Wheat, corn, kafir, milo maize, whole wheat screenings, oyster shell, limestone grit |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Cyphers Incubator Company, Buffalo, N. Y. | | | | | | |
| Standard Developing Food ----- | 7629 | 2.5 | 9.5 | 4.0 | Wheat, corn, kafir, milo maize, buckwheat, whole wheat screenings | |
| Complete Scratching Food ----- | 7630 | 2.5 | 9.5 | 4.0 | Wheat, corn, kafir, milo maize, whole wheat screenings, oyster shell, limestone grit | |
| Standard Scratching Food ----- | 7631 | 2.5 | 9.5 | 4.0 | Wheat, corn, kafir, milo maize, oats, buckwheat, whole wheat screenings | |
| Meat Mash ----- | 7632 | 3.0 | 15.0 | 8.0 | Wheat middlings, corn gluten feed, corn meal, corn bran, alfalfa, reddog flour, meat, bone, oyster shell | |
| Laying Mash ----- | 7633 | 3.0 | 14.0 | 8.0 | Wheat bran, wheat middlings, corn meal, kafir meal, alfalfa, reddog flour, blood meal, oyster shell | |
| Fertile Egg Mash ----- | 7634 | 3.0 | 9.5 | 12.0 | Oats, wheat bran, wheat middlings, corn meal, alfalfa, oyster shell | |
| Pigeon Food ----- | 7635 | 3.0 | 10.0 | 4.0 | Wheat, corn, kafir, milo malze, peas, hemp, millet, whole wheat screenings | |
| Growing Mash ----- | 7637 | 3.0 | 10.0 | 10.0 | Oats, corn meal, wheat middlings, alfalfa, meat, bone, oyster shell | |
| Delp Grain Company, E. E., Bourbon, Ind. | | | | | | |
| Bourbon Scratch Feed ----- | 4985 | 3.2 | 10.0 | 6.0 | Wheat, corn, kafir, barley, millet, buckwheat, sunflower seed, bone, charcoal, limestone grit | |
| Bourbon Chick Feed ----- | 5906 | 3.2 | 10.0 | 6.0 | Wheat, corn, kafir, millet, limestone grit | |
| Dickinson Company, The Albert, Chicago, Ill. | | | | | | |
| Crescent Chick Feed, With Grit ----- | 2807 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hulled oats, millet, limestone grit | |
| Crescent Chick Feed, No Grit ----- | 2808 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hulled oats, millet | |
| King Pigeon Feed, With Grit ----- | 2812 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, peas, buckwheat, millet, hemp, grit (limestone, mica) | |
| King Pigeon Feed, No Grit ----- | 2813 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, peas, buckwheat, millet, hemp | |
| Colonial Developing Feed, With Grit ----- | 2814 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hulled oats, buckwheat, millet, limestone grit | |
| Colonial Developing Feed, No Grit ----- | 2815 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hulled oats, buckwheat, millet | |
| White Cross Chick Feed, No Grit ----- | 3051 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet | |
| Queen Poultry Mash ----- | 4232 | 2.5 | 11.0 | 10.0 | Alfalfa meal, wheat bran, wheat feed meal, corn bran, corn feed meal, beef scraps, linseed meal, ½% salt | |
| Pine Tree Chick Feed No Grit ----- | 4950 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet | |
| Pine Tree Chick Feed—With Grit ----- | 4951 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, limestone grit | |
| Globe Chick Feed With Grit ----- | 5615 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, hulled oats, limestone grit | |
| Globe Chick Feed, No Grit ----- | 5616 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, hulled oats | |
| Globe Developing Feed With Grit ----- | 5647 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hulled oats, buckwheat, millet, granite grit | |
| Globe Developing Feed No Grit ----- | 5648 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hulled oats, buckwheat, millet | |
| Colonial Chick Feed, With Grit ----- | 5777 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, limestone grit | |
| White Cross Chick Feed With Grit ----- | 5925 | 2.5 | 9.0 | 5.0 | Wheat, corn, kafir, millet, limestone grit | |
| Globe Scratch Feed With Grit ----- | 6385 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, linseed oil cake, limestone grit | |
| Globe Scratch Feed No Grit ----- | 6386 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, linseed oil cake | |
| Crescent Scratch Feed With Grit ----- | 6387 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, linseed oil cake, limestone grit | |
| Crescent Scratch Feed No Grit ----- | 6388 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, linseed oil cake | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Dickinson Company, The Albert, Chicago, Ill. White Cross Scratch Feed No Grit ----- | 6390 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed |
| Pine Tree Scratch Feed No Grit ----- | 6392 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed |
| Colonial Scratch Feed With Grit ----- | 6393 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, limestone grit |
| Rival Scratch Feed With Grit ----- | 6538 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, wild buckwheat (with not to exceed 1% miscellaneous wild seeds occurring in above seeds and grains) limestone grit |
| Rival Scratch Feed No Grit ----- | 6539 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, oats, barley, wild buckwheat (with not to exceed 1% miscellaneous wild seeds occurring in above seeds and grains) |
| Colonial Scratch Feed No Grit ----- | 6540 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed |
| Colonial Chick Feed No Grit ----- | 6541 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet |
| White Cross Scratch Feed With Grit ----- | 6968 | 2.5 | 9.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, limestone grit |
| Pine Tree Scratch Feed With Grit ----- | 6969 | 2.5 | 9.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, limestone grit |
| Globe Egg Mash ----- | 6999 | 3.0 | 15.0 | 10.0 | Wheat bran, wheat middlings, alfalfa meal, corn bran, corn feed meal, linseed oil meal, meat scraps, ½% salt |
| Globe Pigeon Feed No Grit ----- | 7038 | 2.5 | 10.0 | 5.0 | Wheat, peas, kafir, millet, buckwheat, hemp |
| Dixie Mills Company, East St. Louis, Ill. Dixie Poultry Mash ----- | 7621 | 3.0 | 17.0 | 9.0 | Wheat bran, wheat middlings, alfalfa meal, corn meal, linseed meal, granulated meat, 1% charcoal, 1% salt |
| Polo Hen Feed ----- | 8262 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, emmer, sunflower seed, whole wheat screenings |
| Polo Hen Feed (With Grit) ----- | 8263 | 2.0 | 9.0 | 5.0 | Wheat, corn, kafir, milo, barley, emmer, sunflower seed, whole wheat screenings, limestone grit |
| Dixie Hen Feed ----- | 8633 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, oats, emmer, sunflower seed |
| Polo Chick Feed (Grit) ----- | 9221 | 2.0 | 9.0 | 5.0 | Wheat, corn, kafir, milo, whole screenings from wheat and flax, limestone grit |
| Dixie Chick Feed ----- | 9222 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, milo, whole screenings from wheat and flax |
| Polo Chick Feed ----- | 9242 | 2.0 | 9.0 | 5.0 | Wheat, corn, kafir, milo, millet, whole screenings from wheat and flax |
| Early & Daniel Company, The, Cincinnati, Ohio Eadon Chick Feed ----- | 4436 | 2.5 | 10.0 | 11.0 | Wheat, corn, oats, barley, timothy seed, clover seed, whole screenings from timothy and clover seeds |
| Tuxedo Scratch ----- | 4606 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, sunflower seed |
| Tuxedo Scratch (With Grit) ----- | 4607 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, sunflower seed, marble grit |
| Ce-re-a-lia Egg Mash ----- | 4867 | 5.0 | 20.0 | 7.5 | Ground wheat, wheat bran, wheat middlings, corn meal, ground oat groats, alfalfa leaf meal, linseed meal, beef scraps |
| Eadon Scratch Feed (No Grit) ----- | 5862 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, rye, buckwheat, sunflower seed |
| Tuxedo Chick ----- | 5863 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, oat groats |
| Eadon Chick With Grit ----- | 9363 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oat groats, millet, limestone grit |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Eberts & Bro., North Vernon, Ind. Quality Scratch Feed ----- | 3063 | 2.5 | 10.0 | 14.0 | Wheat, corn, barley, oats, kafir, buckwheat, sunflower seed |
| D D Hen Feed ----- | 8001 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, wild buckwheat, millet seed, (with not to exceed ¼% miscellaneous wild seeds occurring in above seeds and grains) charcoal, marble grit |
| Edinger & Company, Louisville, Ky. Arrow Egg and Growing Mash ----- | 6694 | 4.0 | 17.0 | 9.0 | Oats, wheat bran, wheat middlings, corn meal, alfalfa meal, linseed meal, meat scraps, bone meal, charcoal, 1% salt |
| Arrow Chick Feed (With Grit) ----- | 6695 | 2.7 | 10.5 | 4.0 | Wheat, corn, kafir, milo maize, millet, whole wheat screenings, limestone grit |
| Arrow Chick Feed (No Grit) ----- | 6696 | 2.7 | 10.5 | 4.0 | Wheat, corn, kafir, milo maize, millet, whole wheat screenings |
| Arrow Hen Feed (With Grit) ----- | 6697 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, barley, clipped oats, sunflower seed, limestone grit |
| Arrow Hen Feed (No Grit) ----- | 6698 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, barley, clipped oats, sunflower seed |
| Producer Scratch Feed ----- | 7263 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, barley, milo maize, oats, buckwheat, sunflower seed, linseed oil cake |
| Producer Developing Feed ----- | 7264 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, hulled oats, milo maize, millet, buckwheat |
| Producer Chick Feed ----- | 7265 | 3.0 | 10.0 | 4.0 | Wheat, corn, kafir, hulled oats, millet, milo maize |
| Emison & Company, J. & S., (Baltic Mills) Vincennes, Ind. Blue Diamond Little Chick Feed ----- | 5071 | 2.5 | 8.5 | 6.0 | Wheat containing field seeds, corn, kafir, barley, millet, carbonate of lime (limestone) |
| Blue Diamond Poultry Feed ----- | 6248 | 2.5 | 8.5 | 6.0 | Wheat containing field seeds, corn, kafir, barley, oats, rye, sunflower seed, corn germ, carbonate of lime (limestone) |
| Enos, M. T., New Albany, Ind. Enos' Chick Feed ----- | 3650 | 3.2 | 9.5 | 6.0 | Wheat, corn, kafir, milo maize, millet, charcoal |
| Eureka Mills Company, St. Louis, Mo. Eureka Chick Feed ----- | 5794 | 3.0 | 10.0 | 4.7 | Wheat, corn, kafir, millet, whole wheat screenings, heneta grit (lime, sodium, silica, phosphorous compounds) |
| Eureka Hen Feed ----- | 5795 | 2.4 | 10.0 | 2.0 | Wheat, corn, kafir, barley, sunflower seed, heneta grit (sodium, lime, silica, phosphorous compounds) |
| Everitt's O. K. Seed Store, Indianapolis, Ind. O. K. Scratch Feed ----- | 8706 | 2.7 | 10.0 | 6.0 | Wheat, corn, kafir, oats, buckwheat, whole wheat screenings, non germinating garden seeds |
| Fairplay Feed Mills, Linton, Ind. Success Scratch Feed (With Grit & Oyster Shell) ----- | 0454 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, sunflower seed, charcoal, oyster shell, mica grit |
| Success Chick Feed With Grit ----- | 6720 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, millet seed, charcoal, mica grit |
| Fairplay Scratch Feed With Grit & Oyster Shell ----- | 7753 | 2.5 | 9.0 | 5.0 | Wheat, corn, kafir, barley, oats, sunflower seed, charcoal, oyster shell, mica grit |
| Fairplay Scratch Feed ----- | 7826 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, milo, barley, oats, sunflower seed, charcoal |
| Ferger Grain Company, The, Cincinnati, Ohio Columbia Scratch Grains ----- | 5356 | 3.0 | 10.0 | 4.0 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed, millet seed |
| Columbia Little Chick Feed ----- | 7655 | 2.5 | 10.0 | 5.0 | Wheat, corn grits, kafir, oat groats, millet seed |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Fisher Bros., Evansville, Ind. | | | | | | |
| Diamond Scratch Feed ----- | 8928 | 2.5 | 9.0 | 7.0 | | Wheat, corn, oats, sunflower seed, whole wheat screenings, charcoal |
| Diamond Scratch Feed With Grit ----- | 8929 | 2.5 | 9.0 | 7.0 | | Wheat, corn, oats, sunflower seed, whole wheat screenings, charcoal, limestone grit |
| Diamond Chick Feed ----- | 9282 | 2.5 | 9.0 | 7.0 | | Wheat, corn, millet seed |
| Diamond Chicken Chowder ----- | 9348 | 3.0 | 17.0 | 8.0 | | Wheat bran, wheat middlings, corn feed meal, alfalfa meal, linseed meal, meat scraps, 1% charcoal |
| Gandy & Company, O., South Whitley, Ind. | | | | | | |
| Chick Feed Standard A. Brand ----- | 4747 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, barley, millet |
| Standard A. Brand Poultry Feed ----- | 4748 | 2.5 | 9.5 | 5.0 | | Wheat, corn, kafir, barley, oats, millet, buckwheat, sunflower seed |
| Gas City Elevator Company, Gas City, Ind. | | | | | | |
| Scratch Feed ----- | 8569 | 2.5 | 9.0 | 5.0 | | Wheat, corn, kafir, oats, milo, sunflower seed, charcoal |
| Gibson Live Stock & Feed Company, Princeton, Ind. | | | | | | |
| Pilgrim Scratch Grains ----- | 9123 | 2.5 | 8.0 | 7.0 | | Corn, oats, kafir, whole wheat screenings, oyster shells |
| Glenger & Company, J., Jeffersonville, Ind. | | | | | | |
| Blue Bell Scratch Feed ----- | 6014 | 2.5 | 9.0 | 6.0 | | Wheat, corn, kafir, oats, sunflower seed |
| Glen Echo Mills, Indianapolis, Ind. | | | | | | |
| Indian Scratch Feed ----- | 5638 | 2.0 | 8.0 | 10.0 | | Wheat, corn, kafir, oats, sunflower seed |
| Golden Grain Milling Company, East St. Louis, Ill. | | | | | | |
| Golden Grain Scratch Feed ----- | 7366 | 3.0 | 10.0 | 6.0 | | Wheat, corn, kafir, barley, milo maize, sunflower seed |
| Economy Scratch Feed ----- | 7367 | 3.0 | 10.0 | 6.0 | | Wheat, corn, kafir, barley, milo maize |
| Golden Grain Chick Feed ----- | 7368 | 3.0 | 10.0 | 5.0 | | Wheat, corn, kafir, milo maize, millet |
| Gotto, O. W., Michigan City, Ind. | | | | | | |
| "Peerless" Scratch Feed ----- | 8699 | 2.5 | 10.0 | 6.0 | | Wheat, corn, kafir, oats, barley, buckwheat, charcoal, oyster shells, mica grit |
| Graft, O. V., Winchester, Ind. | | | | | | |
| Imperial Chick Feed ----- | 7806 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet, steel cut oats |
| Imperial Scratch Feed ----- | 7807 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, barley, cane seed, buckwheat, sunflower seed |
| Grain Belt Mills Company, St. Joseph, Mo. | | | | | | |
| "Gee-Bee" Hen Feed ----- | 9187 | 3.0 | 10.0 | 6.0 | | Wheat, corn, kafir, oats, barley, milo, sunflower seed |
| "Gee-Bee" Chick Feed ----- | 9188 | 3.0 | 10.0 | 6.0 | | Wheat, corn, kafir, milo, millet |
| Habig Bros., Indianapolis, Ind. | | | | | | |
| Habig Brothers Chick Food ----- | 2521 | 5.0 | 8.0 | 4.0 | | Wheat, corn, kafir, millet, limestone grit |
| Pigeon Feed ----- | 4112 | 3.0 | 10.5 | 5.0 | | Wheat, corn, kafir, buckwheat, peas, hemp seed, charcoal, limestone grit |
| Yankee Chick Food ----- | 5673 | 3.0 | 8.0 | 6.0 | | Corn, kafir, millet, whole wheat screenings, limestone grit |
| Hales & Edwards Company, Chicago, Ill. | | | | | | |
| Morning Glory Scratch Feed (With Grit, Shell & Charcoal) ----- | 7467 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed, 1% charcoal, 4% oyster shell, 4% quartz grit |
| Red Comb Chick Mash With Buttermilk ----- | 8738 | 4.0 | 16.0 | 9.0 | | Corn feed meal, old process linseed oil meal, dried buttermilk, oat flour, barley flour, wheat middlings, alfalfa leaf flour, dextrose, not over 1% calcium carbonate, ½% salt |
| Morning Glory Scratch Feed (With Grit & Shell) ----- | 8939 | 2.0 | 9.0 | 7.0 | | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed, not over 4% oyster shell, 4% limestone grit |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Hales & Edwards Company, Chicago, Ill. | | | | | |
| Red Comb Poultry Feed (No Grit) | 8953 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, barley, oat buckwheat, sunflower seed |
| Red Comb Mash Feed (With Dried Buttermilk) and Shell | 9036 | 4.0 | 15.0 | 10.0 | Oats, dried buttermilk, linseed oil meal, corn feed meal, meat scrap, wheat bran, wheat middlings, alfalfa meal, not over 5% oyster shell |
| Red Comb Poultry Feed (With Grit & Shell) .. | 9103 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, not over 3% oyster shell, 3% calcium carbonate |
| Red Comb Coarse Chick Feed (With Grit) | 9104 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, millet seed, hulled oats, not over 6% calcium carbonate |
| Red Comb Coarse Chick Feed (No Grit) | 9105 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, millet seed, hulled oats |
| Red Comb Fine Chick Feed (With Grit) | 9106 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, millet seed, steel cut oats, not over 6% calcium carbonate |
| Red Comb Fine Chick Feed (No Grit) | 9107 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, millet seed, steel cut oats |
| Red Comb Crate Fattener (With Dried Buttermilk) | 9108 | 4.0 | 15.0 | 8.0 | Oat flour, barley flour, reddog flour, wheat middlings, alfalfa meal, corn feed meal, dried buttermilk |
| Cackle Poultry Feed (With Grit & Shell) | 9109 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, barley, oats, sunflower seed, not over 4% oyster shell, 4% calcium carbonate |
| Cackle Poultry Feed (No Grit) | 9110 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, barley, oats, sunflower seed |
| Cackle Fine Chick Feed (With Grit) | 9111 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, millet seed, not over 8% calcium carbonate |
| Cackle Fine Chick Feed (No Grit) | 9112 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, millet seed |
| Morning Glory Scratch Feed (No Grit) | 9113 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed |
| Pound Squab Pigeon Feed (With Grit) | 9114 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, hemp, peas, buckwheat, millet, not over 6% calcium carbonate |
| Pound Squab Pigeon Feed (No Grit) | 9115 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, hemp, peas, buckwheat, millet |
| Hanks Company, Howard H., Chicago, Ill. | | | | | |
| Golden Egg Mash Feed | 5372 | 4.0 | 15.0 | 8.0 | Wheat bran, wheat middlings, alfalfa meal, oat meal, corn meal, ground cake from flaxseed and field seeds, (wheat, wild buckwheat, pigeon grass, wild mustard) meat scraps, charcoal, oyster shell, mica grit |
| Gold Egg Chick Feed (No Grit) | 5889 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, steel cut oats, charcoal |
| Kukoo Chick Feed (No Grit) | 5961 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, millet seed, charcoal |
| Gold Egg Pigeon Feed, With Grit | 6165 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hemp seed, peas, millet seed, buckwheat, charcoal, mica grit |
| Early Bird Scratch Feed, No Grit, No Shell .. | 6186 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, sunflower seed, charcoal |
| Early Bird Scratch Feed, With Grit & Shell .. | 6311 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, charcoal, oyster shell, mica grit |
| Golden Egg Fine Chick Feed With Grit | 6684 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, steel cut oats, charcoal, oyster shells, mica grit |
| Kukoo Fine Chick Feed With Grit | 6685 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, millet seed, charcoal, oyster shells, mica grit |
| Kukoo Coarse Chick Feed With Grit | 6754 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, millet seed, charcoal, oyster shell, mica grit |
| Golden Egg Scratch Feed With Grit & Shell .. | 7036 | 2.5 | 9.0 | 5.0 | Wheat, corn, milo maize, barley, oats, buckwheat, sunflower seed, charcoal, oyster shell, limestone grit |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Hanks Company, Howard H., Chicago, Ill. Kukoo Scratch Feed With Garit & Shell..... | 7037 | 2.5 | 8.5 | 5.0 | | Wheat, corn, milo maize, barley, sunflower seed, charcoal, oyster shells, limestone grit |
| Golden Egg Scratch Feed No Grit No Shell.... | 7040 | 2.5 | 9.0 | 5.0 | | Wheat, corn, milo maize, barley, oats, buckwheat, sunflower seed, charcoal |
| Golden Egg Coarse Chick Feed With Grit..... | 7564 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, hulled oats, charcoal, oyster shells, mica grit |
| Kukoo Scratch Feed No Grit No Shell..... | 7583 | 2.5 | 8.5 | 5.0 | | Wheat, corn, milo maize, barley, sunflower seed, charcoal |
| Hartman & Sons, Louis, New Albany, Ind. Chicken Feed | 2022 | 2.5 | 10.0 | 7.0 | | Wheat, corn, kafir, sunflower seed, whole wheat screenings, mica, feldspar, quartz grit |
| Havens, P. W., Hartford City, Ind. Havens' Best of All Chicken Feed | 5540 | 2.2 | 8.5 | 6.0 | | Wheat, corn, kafir, barley, milo maize, buckwheat, sunflower seed, charcoal, limestone grit |
| Start Me Right | 5541 | 2.5 | 9.0 | 4.5 | | Wheat, corn, kafir, millet, charcoal, oyster shell |
| Haynes Milling Company, The, Portland, Ind. "U. B. Developer" | 5083 | 2.5 | 9.5 | 5.0 | | Wheat, corn, kafir, whole wheat screenings |
| "Hens Will Lay" | 8961 | 3.0 | 17.5 | 9.0 | | Wheat bran, wheat middlings, corn gluten meal, corn meal, linseed oil meal, meat scraps |
| Heitschmidt, A. C., Michigan City, Ind. Heitschmidt's Screenings | 2551 | 2.5 | 10.0 | 6.0 | | Wheat, corn, barley, oats, kafir, buckwheat, sunflower seed, shells, mica grit |
| Henderson & Company, W. D., Fort Wayne, Ind. Atlas Poultry Mash | 5333 | 3.0 | 14.0 | 10.0 | | Wheat shorts, corn meal, alfalfa meal, linseed oil meal, beef scraps, charcoal, salt |
| H. O. Company, The, Buffalo, N. Y. The H. O. Company's Steam Cooked Chick Feed | 6653 | 3.0 | 12.0 | 9.0 | | Wheat, corn, kafir, millet, peas, cut oat meal |
| The H-O Co's Algrane Scratching Feed..... | 6838 | 3.5 | 11.0 | 9.0 | | Wheat, corn, kafir, oats, hulled oats, barley, milo maize, peas, buckwheat, sunflower seed, whole wheat screenings |
| Holser & Company, B. I., Walkerton, Ind. Hoosier Scratch Feed | 5814 | 2.5 | 9.5 | 6.0 | | Wheat, corn, kafir, oats, rye, buckwheat, sunflower seed, linseed cake, oyster shells |
| Hoosier Chick Feed | 5815 | 2.5 | 9.0 | 5.0 | | Wheat, corn, kafir, millet seed, oyster shells |
| Hoosier Egg Mash | 5816 | 3.0 | 14.0 | 10.0 | | Oats, wheat bran, wheat middlings, alfalfa meal, wheat feed meal, corn bran, corn feed meal, linseed meal, meat scraps |
| Humphreys & Company, J. F., Bloomington, Ill. Wish Bone Poultry Feed, Hen Size | 5543 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, barley, buckwheat, sunflower seed |
| Wish Bone Chick Feed With Grit | 6473 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains) charcoal, marble grit |
| Wish Bone Chick Feed Without Grit..... | 6474 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains) charcoal |
| Indiana Elevator, Indianapolis, Ind. Hoosier Scratch Feed | 8579 | 2.0 | 8.5 | 6.0 | | Wheat, corn, kafir, milo, oats, buckwheat, sunflower seed, whole wheat screenings, charcoal, oyster shell, limestone grit |
| Indiana Milling Company, Terre Haute, Ind. 3-7 Chick Feed | 3133 | 3.0 | 7.0 | 20.0 | | Whole oat screenings, whole corn screenings |
| Eggo Chicken Feed | 3965 | 2.0 | 10.0 | 2.0 | | Wheat, corn, kafir, oats, barley |
| Everybodys Poultry Feed | 4768 | 4.0 | 10.0 | 4.0 | | Wheat, corn, oats |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Indiana Seed Company, Indianapolis, Ind. Monument Brand Chick Food ----- | 2245 | 3.0 | 10.5 | 4.5 | Wheat, corn, kafir, millet, flaxseed, charcoal, whole and ground screenings from wheat, corn, oats and barley |
| Monument Brand Pigeon Feed ----- | 3041 | 2.5 | 10.5 | 4.5 | Wheat, corn, kafir, buckwheat, millet, peas, hemp seed. |
| Monument Brand Scratch Food ----- | 3421 | 3.0 | 10.5 | 5.0 | Wheat, corn, kafir, oats, barley, cane, buckwheat, sunflower seed, linseed oil cake, whole screenings from wheat, corn, oats and barley |
| Monument Brand Poultry Mash ----- | 5113 | 3.0 | 10.5 | 9.0 | Wheat bran, alfalfa meal, linseed oil meal, corn bran, siftings from crushed wheat, corn and kafir, beef scraps, charcoal |
| Monument Brand Mixed Feed ----- | 5643 | 2.0 | 9.0 | 6.0 | Millet seed, corn bran, siftings from cracked wheat, corn, kafir and cane seed, charcoal |
| Indiana Squab Company, The, Terre Haute, Ind. "Hoosier Pigeon Feed" ----- | 7407 | 2.5 | 10.0 | 7.0 | Corn, kafir, peas, peanut kernels |
| International Sugar Feed Company, Minneapolis, Minn. International Poultry Feed (Chick Size)----- | 5823 | 3.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, milo maize, millet seed |
| International Poultry Feed (With Grit)----- | 8090 | 3.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, oats, barley, buckwheat, sunflower seed, quartz and limestone grit |
| International Poultry Feed ----- | 9090 | 3.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, milo, buckwheat, sunflower seed |
| Iroquois Roller Mills, Rensselaer, Ind. Iroquois Hen Feed ----- | 5089 | 2.5 | 8.0 | 11.0 | Wheat, corn, kafir, buckwheat, oyster shells |
| Iroquois Chick Starter ----- | 5797 | 2.8 | 8.7 | 5.0 | Wheat, corn, millet, charcoal, mica grit |
| J Street Milling Company, Laporte, Ind. Scratch Feed ----- | 2733 | 2.5 | 9.0 | 7.0 | Wheat, corn, oats, barley |
| Maple City Scratch Feed ----- | 9255 | 2.5 | 9.0 | 7.0 | Corn, oats, barley, whole wheat screenings |
| Jordan, Geo. M., Vincennes, Ind. G. M. J. Red Hen—"Scratch Feed" ----- | 8093 | 2.5 | 10.0 | 6.0 | Corn, kafir, oats, milo, sunflower seed, oyster shells |
| G. M. J. Chick Feed ----- | 9239 | 2.5 | 9.5 | 13.0 | Screened cracked corn, millet seed, oyster shells |
| Kasch, C. C., Logansport, Ind. "Kay" Chick Feed ----- | 7594 | 2.5 | 9.0 | 6.0 | Wheat, corn, kafir, millet, charcoal, limestone grit |
| Kiest Milling Company, Knox, Ind. Kiest Milling Co's Poultry Feed ----- | 5107 | 2.5 | 8.0 | 7.0 | Wheat, corn, kafir, oats, barley, milo maize, buckwheat, sunflower seed, charcoal |
| Kiest's Poultry Mash ----- | 9072 | 3.0 | 15.0 | 12.0 | Oats, corn, wheat bran, wheat middlings, ground wheat screenings, alfalfa meal, meat scraps, linseed oil meal |
| Kingman Grain & Milling Company, Kingman, Ind. Busy Bee Chick Feed ----- | 5792 | 2.0 | 9.0 | 5.0 | Wheat, corn, kafir, millet, charcoal, limestone grit |
| Kingsbury Milling Company, Kingsbury, Ind. Interstate Producer Feed ----- | 5009 | 2.9 | 10.0 | 12.0 | Wheat, corn, kafir, buckwheat, millet, shells, mica grit |
| Interstate Chick Feed ----- | 5837 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, hulled oats, oyster shells, limestone grit |
| Interstate Scratch Feed ----- | 5838 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, buckwheat, clipped oats, sunflower seed, linseed cake, oyster shell, limestone grit |
| Knecht Milling Company, Hartford City, Ind. Sunflower Scratch Feed ----- | 6143 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, sunflower seed, charcoal, oyster shell |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Knoke & Company, H. C., Chicago, Ill. Perfecto Poultry Food ----- | 8455 | 2.5 | 9.5 | 5.0 | Wheat, corn, kafir, oats, barley, peas, buckwheat, sunflower seed, whole screenings from wheat and barley, limestone grit |
| Knollenberg Milling Company, Quincy, Ill. National High Protein Egg Scratch ----- | 4246 | 3.5 | 12.5 | 3.5 | Wheat, corn, kafir, barley, buckwheat, sunflower seeds, beef scraps |
| Kornfalfa Feed Milling Company, Kansas City, Mo. Kluk Scratch Feed ----- | 3725 | 3.2 | 10.0 | 4.5 | Wheat, corn, kafir, milo malze, buckwheat, sunflower seed |
| Kluk Chick Feed ----- | 3726 | 3.5 | 9.5 | 4.0 | Wheat, corn, kafir, milo maize, millet seed |
| Krause Milling Company, Chas. A., Milwaukee, Wis. Blue Top Fine Chick Feed (No Grit)----- | 6500 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed |
| Blue Top Fine Chick Feed (With Grit)----- | 6534 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, charcoal, mica grit |
| Blue Top Scratch Feed (With Grit)----- | 7327 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, limestone grit |
| Blue Top Scratch Feed (No Grit)----- | 7328 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed |
| Blue Top Chick Feed, With Grit ----- | 7752 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, carbonate of lime (cryseo grit) |
| Krause Mash ----- | 8058 | 3.5 | 18.0 | 7.0 | Wheat bran, wheat middlings, malzo (corn) reddog flour, corn feed meal, corn germ oil meal, hominy feed, alfalfa meal, meat scraps |
| Cream City Scratch Feed, With Grit----- | 8328 | 2.5 | 8.5 | 5.0 | Wheat, corn, kafir, milo, barley, oats, buckwheat, sunflower seed, carbonate of lime (cryseo grit) |
| Cream City Scratch Feed, No Grit ----- | 8329 | 2.5 | 8.5 | 5.0 | Wheat, corn, kafir, milo, barley, oats, buckwheat, sunflower seed |
| Conservation Scratch No Grit ----- | 8058 | 2.5 | 10.0 | 5.0 | Corn, kafir, milo, barley, oats, buckwheat, sunflower seed |
| Krause Chick Feed With Grit ----- | 9006 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, carbonate of lime (cryseo grit) |
| Krause Chick Feed No Grit ----- | 9131 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet |
| Conservation Chick With Grit ----- | 9347 | 2.5 | 9.0 | 5.0 | Corn, kafir, milo, millet, carbonate of lime (limestone) |
| Conservation Chick No Grit ----- | 9359 | 2.5 | 9.0 | 5.0 | Corn, kafir, milo, millet |
| Conservation Developing With Grit ----- | 9360 | 2.5 | 10.0 | 5.0 | Corn, kafir, milo, buckwheat, millet, carbonate of lime (limestone) |
| Conservation Developing No Grit ----- | 9361 | 2.5 | 10.0 | 5.0 | Corn, kafir, milo, buckwheat, millet |
| Conservation Scratch With Grit ----- | 9362 | 2.5 | 10.0 | 5.0 | Corn, kafir, milo, barley, oats, buckwheat, sunflower seed, carbonate of lime (limestone) |
| Kuhn & Son, John H., Michigan City, Ind. Heneatta Scratch Feed, No Grit ----- | 7798 | 2.2 | 9.0 | 8.0 | Wheat, corn, kafir, oats, barley, rye |
| Kuhn's Scratch Feed ----- | 9052 | 2.5 | 9.0 | 5.0 | Wheat, corn, kafir, barley, oats, rye, buckwheat, sunflower seed, limestone grit |
| LaPorte Milling Company, LaPorte, Ind. U-Need-Me Chick Feed ----- | 4305 | 3.0 | 9.0 | 8.0 | Wheat, corn, oats, whole wheat screenings |
| Linkhart & Son, J. W., North Vernon, Ind. Linkhart's Chick Feed ----- | 7616 | 2.0 | 9.5 | 8.0 | Salvage wheat, corn, kafir, millet, charcoal |
| Linton Mill Company, Linton, Ind. Success Scratch Feed ----- | 5843 | 2.5 | 10.0 | 4.5 | Wheat, corn, kafir, wild buckwheat |
| Success Scratch Feed With Grit ----- | 5844 | 2.5 | 10.0 | 4.5 | Wheat, corn, kafir, wild buckwheat, marble grit |
| Success Little Chick Feed ----- | 5845 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, pigeon grass, millet, marble grit |
| Loogootee Milling Company, Loogootee, Ind. Mixed Chicken Feed ----- | 3824 | 2.5 | 10.0 | 8.0 | Wheat, corn, oats |
| L. M. C. Chick Feed ----- | 8567 | 4.0 | 10.0 | 10.0 | Wheat, corn, peas, oyster shell, mica grit |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Loughry Bros. Milling & Grain Company, Monticello, Ind. Loughry's Star Poultry Feed ----- | 2523 | 2.5 | 10.0 | 4.5 | Wheat, corn, oats, buckwheat, kafir, sunflower seed, whole wheat screenings, shells, charcoal, quartz grit |
| Loughry's Star Chick Feed ----- | 2524 | 2.5 | 10.0 | 4.5 | Wheat, corn, millet, kafir, oats, whole wheat screenings, charcoal, quartz grit |
| Louisville Cereal Mill Company, Louisville, Ky. Nonesuch Poultry Feed ----- | 6237 | 2.5 | 10.0 | 4.0 | Wheat, corn, kafir, oats, barley, sunflower seed |
| Maginot Bros., Hammond, Ind. Magnet Poultry Feed ----- | 3388 | 2.0 | 10.0 | 6.0 | Wheat, corn, oats, kafir, barley, buckwheat, sunflower seed, linseed cake, shells, charcoal, limestone grit |
| "Magnet" Chick Feed ----- | 3512 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, hulled oats, millet, limestone grit |
| "Magnet" Poultry Mash ----- | 4128 | 2.5 | 11.0 | 11.0 | Corn, wheat bran, wheat middlings, alfalfa meal, wheat flour, corn feed meal, meat, blood, bone |
| Majot & Morgan, Michigan City, R. R. 1, Ind. Scratch Feed ----- | 8038 | 2.0 | 9.0 | 7.5 | Wheat, corn, kafir, barley, oats, buckwheat, oyster shells, mica and quartz grit |
| Martin, John D., Lafayette, Ind. Duree Poultry Mash ----- | 3501 | 3.5 | 15.0 | 8.0 | Wheat bran, middlings, oats, corn meal, gluten meal, alfalfa meal, oil meal, beef scraps, blood flour |
| Duree Chick Feed ----- | 3548 | 3.0 | 10.0 | 4.0 | Wheat, corn, kafir, steel cut oats, millet, hemp, bone |
| Duree Mash Feed ----- | 5274 | 3.5 | 12.0 | 10.0 | Oats, wheat bran, wheat middlings, corn meal, alfalfa meal, linseed oil meal, beef scraps, blood meal |
| Duree Scratch Feed ----- | 5724 | 2.5 | 10.0 | 6.0 | Wheat, corn, kafir, millet, barley, buckwheat, sunflower seed |
| Duree Chick Mash ----- | 7462 | 3.0 | 17.0 | 6.0 | Wheat bran, wheat middlings, corn feed meal, corn gluten feed, beef meal, blood meal, linseed oil meal |
| Duree Chick Milk Mash ----- | 7646 | 3.0 | 17.0 | 5.0 | Gentian, wheat bran, wheat middlings, corn feed meal, milk albumen, beef meal, blood meal, linseed oil meal |
| Duree Milk Egg Mash ----- | 8006 | 4.0 | 17.0 | 6.0 | Wheat bran, wheat middlings, corn germ meal, alfalfa meal, meat meal, linseed oil meal, blood meal, milk albumen, 1/2% salt |
| Maumee Valley Mills, New Haven, Ind. Atlas Chicken Feed ----- | 5125 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, millet |
| Vim and Vigor Chicken Feed ----- | 5395 | 2.5 | 10.0 | 6.0 | Corn, kafir, oats, barley, rye, buckwheat, whole wheat screenings, oyster shell, limestone grit |
| Mayflower Mills, Fort Wayne, Ind. Admiral Chick Food ----- | 1732 | 2.5 | 10.0 | 2.0 | Wheat, corn, kafir, oats, sunflower seeds, milo maize, flaxseed, millet, limestone grit, charcoal |
| Bon Ton Poultry Food ----- | 1733 | 2.5 | 10.0 | 2.0 | Wheat, corn, barley, kafir, oats, milo maize, flaxseed, buckwheat, sunflower seeds, limestone, charcoal |
| Merchants Hay & Grain Company, Indianapolis, Ind. Perfection Poultry Mash ----- | 4956 | 3.0 | 12.5 | 14.0 | Mustard, wheat bran, wheat middlings, alfalfa meal, corn feed meal, beef scraps, linseed oil meal, charred bone |
| Midland Poultry Food Company, Kansas City, Mo. Midland Poultry Food Chick Food ----- | 2363 | 2.9 | 10.0 | 2.5 | Wheat, corn, kafir, millet |
| Midland Poultry Food Scratch ----- | 2364 | 3.1 | 9.4 | 2.5 | Wheat, corn, kafir, sunflower seed |
| Midland Scratch Feed ----- | 3091 | 3.0 | 8.0 | 13.8 | Wheat, corn, kafir, oats, cane, sand grit |
| Developer ----- | 3540 | 2.7 | 10.0 | 4.8 | Wheat, corn, kafir, millet, sand grit |
| No. 4 Midland Egg Food ----- | 4499 | 3.5 | 15.0 | 7.0 | Corn, wheat bran, wheat shorts, dried blood, charcoal, sand grit |
| No. 2 Growing Chick Food ----- | 4983 | 3.0 | 12.0 | 8.5 | Corn, wheat bran, wheat shorts, dried blood, charcoal, quartz grit |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Midland Poultry Food Company, Kansas City, Mo. No. 1 Nursery Chick Food ----- | 4984 | 4.0 | 9.0 | 7.0 | | Wheat bran, wheat shorts, wheat flour, corn meal, dried blood, charcoal, quartz grit |
| Milan Mill & Elevator, Milan, Ind. Poultry for Profit Scratch Feed ----- | 9345 | 2.5 | 9.5 | 5.0 | | Wheat, corn, kafir, oats, buckwheat, sunflower seed |
| Moutoux, P. & H., Evansville, Ind. "X L" Scratch Feed ----- | 9239 | 2.5 | 9.0 | 9.0 | | Wheat, corn, oats, whole wheat screenings, sunflower seed |
| "X L" Chick Scratch Feed ----- | 9283 | 2.5 | 9.0 | 9.0 | | Wheat, corn, millet, whole wheat screenings, charcoal |
| McCormick & Son, Chas. W., Logansport, Ind. Balanced Poultry Feed ----- | 6045 | 3.0 | 9.0 | 6.0 | | Wheat, corn, kafir, oats, milo maize, millet, buckwheat, sunflower seed, linseed oil cake, charcoal, oyster shells, limestone grit |
| McCoy Bros., Liberty, Ind. Reliance Hen Scratch Food ----- | 3357 | 3.0 | 10.0 | 8.0 | | Wheat, corn, oats, barley, sunflower seed |
| Reliance Egg Mash Food ----- | 3358 | 5.0 | 18.0 | 7.0 | | Wheat bran, wheat middlings, corn meal, old process linseed oil meal, beef scraps, charcoal |
| Reliance Chick Mash Feed ----- | 3663 | 5.0 | 16.0 | 8.0 | | Wheat bran, middlings, corn meal, alfalfa meal, beef scraps, linseed oil cake meal, (old process) |
| Reliance Chick Scratch Feed ----- | 3664 | 3.0 | 9.0 | 5.0 | | Wheat, corn, kafir, millet, pin head oats, charcoal |
| McCoy & Company, U. G., Vincennes, Ind. Star Scratch Chicken Feed ----- | 7944 | 2.5 | 7.5 | 5.0 | | Wheat, corn, kafir, oats, sunflower seed, charcoal, oyster shell |
| Star Scratch Chicken Feed Without Grit ----- | 8062 | 3.0 | 9.0 | 6.0 | | Wheat, corn, kafir, oats, sunflower seed, charcoal |
| Our Choice Scratch Chicken Feed ----- | 8063 | 3.0 | 8.0 | 5.0 | | Wheat, corn, kafir, oats, sunflower seed, charcoal, oyster shell |
| McCoy & Garten, Indianapolis, Ind. Eureka Hen Feed ----- | 5371 | 2.5 | 10.0 | 6.0 | | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed, charcoal |
| Eureka Poultry Mash ----- | 6572 | 3.0 | 12.0 | 11.0 | | Wheat bran, corn gluten meal, alfalfa meal, wheat feed meal, corn feed meal, linseed meal, meat scraps, ½% salt |
| Eureka Chick Feed ----- | 6611 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, carbonate of lime (limestone) |
| McCullough, J. Charles, Cincinnati, Ohio Acme Chick ----- | 2926 | 3.0 | 10.0 | 11.0 | | Wheat, corn, kafir, buckwheat, millet seed, cane seed, whole screenings (principally from millet seed, cane seed and clover seed) limestone grit |
| McCullough Seed Company, The J. Chas., Cincinnati, Ohio J. C. McC. Poultry Feed ----- | 5674 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, barley, oats, millet, cane, buckwheat, sunflower seed |
| McMahan Bros., Valparaiso, Ind. Perfection Poultry Mash ----- | 4902 | 2.5 | 10.0 | 10.0 | | Corn, oats, wheat bran, wheat middlings, alfalfa meal, corn gluten feed, linseed meal, beef scraps, bone meal |
| National Oats Company, St. Louis, Mo. Nitro Hen Feed ----- | 8963 | 3.0 | 10.0 | 3.5 | | Wheat, corn, kafir, oats, barley, ground wheat screenings |
| Nutro Chick Feed ----- | 8972 | 3.0 | 10.0 | 3.5 | | Wheat, corn, kafir, millet seed, ground wheat screenings |
| Diamond "C" Hen Feed With Grit ----- | 9020 | 3.0 | 10.0 | 3.5 | | Wheat, corn, kafir, oats, barley, ground wheat screenings, marble grit |
| National Produce Company, Evansville, Ind. National Scratch Feed ----- | 8060 | 2.5 | 9.0 | 6.0 | | Wheat, corn, kafir, barley, milo, oats, buckwheat, sunflower seed |
| Neumann Company, John G., Evansville, Ind. No Waste Scratch Feed ----- | 7987 | 2.5 | 9.0 | 6.0 | | Wheat, corn, kafir, barley, milo maize, oats, buckwheat, sunflower seed |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Odon Milling Company, Odon, Ind. Champion Chick Feed ----- | 7461 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seed occurring in above seeds and grains) charcoal | |
| Ohio Valley Seed Company, Evansville, Ind. Bell Brand Chick Feed ----- | 3589 | 3.5 | 10.5 | 7.0 | Wheat, corn, kafir, millet seed, hulled oats, flaxseed, charcoal | |
| Golden Egg Dry Mash ----- | 5345 | 3.5 | 14.0 | 6.0 | Wheat bran, shorts, corn meal, linseed meal, alfalfa meal, corn gluten feed, meat scraps, charcoal, heneta grit (sodium, lime, silica, phosphorus compounds) | |
| Bell Brand Poultry Feed ----- | 6306 | 3.0 | 10.0 | 6.0 | Wheat, corn, kafir, oats, barley, sunflower seeds, charcoal | |
| Full-Nest Scratch Feed ----- | 6594 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, oats, barley, whole wheat screenings, oyster shells, mica grit | |
| Ossian Roller Mills, Ossian, Ind. Dry Mash Chick Feed ----- | 7554 | 3.0 | 20.0 | 7.0 | Wheat bran and ground wheat screenings, wheat middlings and ground wheat screenings, corn meal, corn gluten meal, beef scraps, charcoal | |
| Egg Producer ----- | 8714 | 3.0 | 14.0 | 10.0 | Wheat bran, wheat middlings, ground wheat screenings, oats, corn gluten feed, charcoal, salt | |
| Egg Mash ----- | 9094 | 3.5 | 16.0 | 10.0 | Wheat bran, wheat middlings, ground wheat screenings, ground oats, corn gluten feed, old process linseed oil meal, cottonseed meal, corn bran, salt, charcoal | |
| Oswego Milling Company, Oswego, N. Y. Pontiac Scratch Feed ----- | 8601 | 1.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, milo, oats, buckwheat | |
| Ovie's Hatchery Company, Marion, Ind. Ovie's Baby Chick Starter ----- | 9289 | 4.0 | 18.0 | 8.0 | Millet seed, rape seed, wheat bran, wheat middlings, corn meal, corn germ meal, oat meal, meat scraps, bone meal, Epsom salt, charcoal | |
| Pancost Milling Company, Elkhart, Ind. Chick Food ----- | 6888 | 2.0 | 7.5 | 8.5 | Corn, oats, buckwheat, whole wheat screenings | |
| Park & Pollard Company of Illinois, Chicago, Ill. Baby Buster Chick Feed ----- | 8423 | 2.0 | 11.0 | 5.0 | Wheat, corn, kafir, milo, oats, millet seed, shredded fish | |
| Red Ribbon Scratch Feed ----- | 8424 | 1.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, milo, buckwheat, sunflower seed | |
| Red Ribbon Chick Feed ----- | 8425 | 2.0 | 10.0 | 5.0 | Wheat, corn, kafir, milo, millet seed | |
| Intermediate Chick Feed ----- | 8426 | 1.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, oats, millet, buckwheat | |
| Pearce Company, O. W., Lafayette, Ind. Flag Brand Chick Feed ----- | 9397 | 2.5 | 9.5 | 5.0 | Corn, kafir, millet, steel cut oats | |
| Flag Brand Scratch Feed ----- | 9398 | 3.0 | 10.5 | 5.0 | Corn, kafir, oats, barley, buckwheat, sunflower seed | |
| Peru Milling Company, Peru, Ind. Peru Poultry Feed ----- | 7526 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, cane seed, sunflower seed, oyster shells | |
| Peters Mill Company, M. C., Omaha, Neb. Peters' Red Feather Poultry Scratch Feed ----- | 9168 | 3.0 | 10.0 | 6.0 | Wheat, corn, kafir, barley, milo, buckwheat, sunflower | |
| Peters' Red Feather Poultry Mash Feed ----- | 9169 | 3.0 | 14.0 | 11.0 | Ground oats, wheat bran, wheat middlings, corn germ meal, linseed oil meal, alfalfa flour, buttermilk | |
| Peters' Red Feather Poultry Chick Feed ----- | 9170 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, milo, millet | |
| Peters' Re-Peter Poultry Scratch Feed ----- | 9171 | 3.0 | 10.0 | 7.0 | Corn, oats, kafir, milo, buckwheat, sunflower | |
| Prairie State Milling Company, Chicago, Ill. Prairie State Scratch Feed No Grit ----- | 6762 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, buckwheat, sunflower seed, charcoal | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Prairie State Milling Company, Chicago, Ill. Prairie State Scratch Feed With Grit..... | 6763 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, buck wheat, sunflower seed, charcoal, oyster shell, limestone grit |
| Garland Scratch Feed, No Grit | 6764 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, buckwheat, sunflower seed, charcoal |
| Garland Scratch Feed, With Grit | 6765 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, buckwheat, sunflower seed, charcoal, oyster shell, limestone grit |
| Prairie State Chick Feed, Coarse, With Grit.. | 6766 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, hulled oats, charcoal, limestone grit |
| Prairie State Chick Feed No Grit..... | 6767 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, steel cut oats, charcoal |
| Prairie State Chick Feed With Grit..... | 6768 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, steel cut oats, charcoal, limestone grit |
| Garland Chick Feed No Grit | 6769 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, steel cut oats, charcoal |
| Garland Chick Feed With Grit | 6770 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, steel cut oats, charcoal, limestone grit |
| Prairie State Poultry Mash | 7255 | 3.5 | 17.0 | 10.0 | Wheat bran, wheat middlings, wheat meal, corn feed meal, kafir meal, alfalfa meal, linseed oil meal, meat scraps, charcoal, oyster shell |
| Red Crown Scratch Feed, No Grit | 7256 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed, charcoal |
| Red Crown Scratch Feed, With Grit..... | 7257 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed, oyster shells, charcoal, limestone grit |
| Prairie State Pigeon Feed | 7744 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, buckwheat, peas, hemp seed, millet seed, charcoal, limestone grit |
| Prater-Mottier Company, Terre Haute, Ind. Praters Scratch Feed | 7582 | 1.5 | 6.0 | 3.0 | Wheat, corn, kafir, barley, sunflower seed, limestone grit |
| Praters A. Scratch Feed | 7612 | 3.0 | 8.0 | 15.0 | Wheat, corn, kafir, barley, sunflower seed |
| Praters Chick Feed | 8400 | 2.0 | 7.0 | 15.0 | Corn, kafir, whole screenings from wheat, millet and clover seed, limestone grit |
| Purina Mills, Branch, Ralston Purina Company, St. Louis, Mo. Purina Scratch Feed | 7827 | 2.5 | 10.0 | 4.0 | Wheat, corn, kafir, barley, milo, sunflower seed |
| Purina Chick Feed | 8004 | 2.5 | 10.0 | 4.0 | Wheat, corn, kafir, millet, milo |
| Purina Chicken Fatena | 8585 | 5.0 | 9.0 | 9.0 | Ground corn, ground oats, kafir meal, barley meal, ground sunflower seeds, wheat middlings, corn germ meal, linseed meal |
| Purity Oats Company, Davenport, Iowa Iowa Chick Feed | 6760 | 3.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, steel cut oats, millet, whole wheat screenings |
| Perfect Scratch Feed | 7121 | 3.2 | 10.0 | 5.0 | Wheat, corn, kafir, hulled oats, milo maize, barley, buckwheat, sunflower seed, whole wheat screenings |
| Perfect Chick Feed | 7122 | 3.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, steel cut oats, millet, whole wheat screenings |
| Iowa Chick Feed, With Grit | 7464 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, steel cut oats, millet, whole wheat screenings, limestone grit |
| Tom Boy Chick Feed, With Grit | 7545 | 2.7 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, steel cut oats, millet, whole wheat screenings, limestone grit |
| Tom Boy Chick Feed, (No Grit) | 7546 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, steel cut oats, millet, whole wheat screenings |
| Tom Boy Scratch Feed (With Grit)..... | 7786 | 2.7 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, barley, hulled oats, buckwheat, sunflower seed, limestone grit |
| Tom Boy Scratch Feed (No Grit) | 7787 | 2.7 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, barley, hulled oats, buckwheat, sunflower seed |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Purity Oats Company, Davenport, Iowa Iowa Scratch Feed (With Grit) ----- | 7788 | 2.7 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, barley, hulled oats, buckwheat, sunflower seed, limestone grit |
| Iowa Scratch Feed ----- | 7789 | 2.7 | 10.0 | 5.0 | Wheat, corn, kafir, milo maize, barley, hulled oats, buckwheat, sunflower seed |
| Tom Boy Poultry Mash ----- | 8146 | 4.0 | 15.0 | 10.0 | Wheat, barley, kafir, milo, millet, buckwheat, meat, wheat bran, wheat middlings, oat meal, oat germ meal, oat middlings, corn meal, corn gluten feed, hominy feed, alfalfa meal, rock phosphate, salt, calcium carbonate, charcoal |
| Quaker Oats Company, The, Chicago, Ill. Eureka Hen Feed (With Grit) ----- | 4875 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, buckwheat, sunflower seed, oyster shells, marble grit |
| Eureka Hen Feed (Without Grit) ----- | 4876 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, buckwheat, sunflower seeds |
| Purity Hen Feed (Without Grit) ----- | 5728 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, buckwheat, sunflower seeds |
| Mothers Feed (Hen Size) ----- | 5785 | 3.5 | 11.0 | 2.5 | Wheat, corn, milo maize, buckwheat, sunflower seeds, oat meal, linseed oil cake |
| Mothers Feed (Chick Size) ----- | 5786 | 3.0 | 10.5 | 2.5 | Wheat, corn, kafir, millet seed, rolled oats, oat meal, charcoal |
| Quaker Poultry Mash ----- | 6361 | 4.0 | 17.5 | 10.0 | Wheat bran, alfalfa meal, hominy feed, corn gluten feed, oat meal, meat scraps, ground screenings from corn, oats, wheat, barley |
| Quaker Chick Feed With Grit ----- | 6411 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains), charcoal, marble grit |
| Quaker Chick Feed Without Grit ----- | 6412 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains), charcoal |
| Schumacher Little Chick Feed Without Grit.. | 6457 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains), charcoal |
| Schumacher Little Chick Feed With Grit..... | 6458 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains), charcoal, marble grit |
| Purity Chick Feed With Grit ----- | 6459 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains), marble grit |
| Purity Chick Feed Without Grit ----- | 6460 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains), charcoal |
| Blue Ribbon Chick Feed With Grit ----- | 6461 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains), charcoal, marble grit |
| Blue Ribbon Chick Feed Without Grit ----- | 6462 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed ½% miscellaneous wild seeds occurring in above seeds and grains), charcoal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Quaker Oats Company, The, Chicago, Ill. American Little Chick Feed With Grit | 6463 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal, marble grit |
| American Little Chick Feed Without Grit..... | 6464 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal |
| Prize Winning Chick Feed With Grit | 6465 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal, marble grit |
| Prize Winning Chick Feed Without Grit..... | 6466 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal |
| Sterling Chick Feed Without Grit | 6468 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal |
| Early Bird Chick Feed With Grit | 6497 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal, marble grit |
| Early Bird Chick Feed Without Grit..... | 6498 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal |
| Pansy Chick Feed With Grit | 6577 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal, marble grit |
| Pansy Chick Feed Without Grit | 6661 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal |
| Big Egg Chick Feed With Grit | 7356 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, milo maize, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal, 6% marble grit |
| Big Egg Chick Feed Without Grit..... | 7357 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, milo maize, millet seed, oat meal, wild buckwheat, (with not to exceed $\frac{1}{2}\%$ miscellaneous wild seeds occurring in above seeds and grains), charcoal |
| Prize Winning Hen Feed Without Grit..... | 7963 | 2.5 | 8.5 | 5.0 | | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seeds |
| Prize Winning Hen Feed With Grit..... | 7964 | 2.5 | 8.5 | 5.0 | | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seeds, limestone grit |
| Ful-O-Pep Dry Mash | 8043 | 4.0 | 20.0 | 10.0 | | Meat scraps, oat meal, fish scraps, alfalfa meal, wheat bran, (with ground wheat screenings not exceeding mill run), corn feed meal, corn gluten feed, cottonseed meal, ground screenings from wheat, corn, barley, oats and flax, bone meal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Quaker Oats Company, The, Chicago, Ill. Ful-O-Pep Scratch Feed | 8944 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, buckwheat, $\frac{1}{2}\%$ sunflower seed |
| Schumacher Poultry Mash | 8985 | 4.0 | 20.0 | 10.0 | Cottonseed meal, alfalfa meal, oat meal, wheat bran, (with ground wheat screenings not exceeding milli run), corn feed meal, corn gluten feed, ground screenings from wheat, oats, barley and flaxseed, meat scraps, bone meal, fish scraps |
| Ful-O-Pep Chick Feed | 9066 | 3.5 | 14.0 | 3.0 | Wheat, corn, oat meal, fish meal |
| Ful-O-Pep Growing Mash | 9067 | 5.5 | 15.5 | 10.0 | Wheat bran, oat meal, alfalfa meal, ground wheat screenings, bone meal, meat scraps |
| Schumacher Scratch Grains With Grit | 9299 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, buckwheat, sunflower seeds, linseed oil cake, 6% marble grit |
| Schumacher Scratch Grains No Grit | 9300 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, buckwheat, sunflower seeds, linseed oil cake |
| Quaker Scratch Grains With Grit..... | 9301 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, buckwheat, sunflower seeds, linseed oil cake, 6% marble grit |
| Quaker Scratch Grains No Grit | 9302 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, buckwheat, sunflower seeds, linseed oil cake |
| Blue Ribbon Scratch Grains No Grit | 9303 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, buckwheat, sunflower seeds, linseed oil cake |
| American Hen Scratch Grains With Grit..... | 9304 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, buckwheat, sunflower seeds, linseed oil cake, 6% marble grit |
| Sterling Scratch Feed No Grit | 9305 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, buckwheat, sunflower seeds, linseed oil cake |
| Pansy Scratch Grains With Grit | 9306 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, oats, barley, buckwheat, sunflower seeds, linseed oil cake, 6% marble grit |
| Pansy Scratch Grains No Grit | 9307 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, oats, barley, buckwheat, sunflower seeds, linseed oil cake |
| Big Egg Scratch Grains With Grit..... | 9308 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, oats, sunflower seeds, whole wheat screenings, linseed oil cake, 6% marble grit |
| Big Egg Scratch Grains No Grit | 9309 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, oats, barley, sunflower seeds, whole wheat screenings, linseed oil cake |
| Purity Scratch Grains No Grit | 9312 | 2.5 | 10.0 | 5.0 | Wheat, corn kafir, milo, barley, buckwheat, sunflower seed, linseed oil cake |
| Early Bird Scratch Grains With Grit | 9313 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, oats, sunflower seeds, whole wheat screenings, linseed oil cake, 6% marble grit |
| Early Bird Scratch Grains No Grit | 9314 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, oats, sunflower seeds, whole wheat screenings, linseed oil cake |
| Prize Winning Scratch Grains Without Grit.. | 9358 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, buckwheat, linseed oil cake, sunflower seeds |
| Ralston Purina Company, St. Louis, Mo. Purina Chicken Chowder Feed, With Charcoal | 7221 | 4.0 | 19.0 | 9.0 | Wheat bran, wheat middlings, corn meal, alfalfa meal, linseed meal, granulated meat, charcoal, salt |
| Purina Pigeon Feed | 8055 | 2.5 | 11.0 | 4.0 | Wheat, millet, kafir, milo, Canada peas |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Rapier Sugar Feed Company, Owensboro, Ky. Rapier's Blue Hen Baby Chick Feed | 5578 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, pigeon grass, limestone grit |
| Rapier's Economy Scratch Feed | 6266 | 2.0 | 10.0 | 5.0 | | Wheat, corn, kafir, barley, sunflower seed |
| Rapier's Economy Scratch Feed, 5% Grit..... | 6580 | 2.0 | 10.0 | 5.0 | | Wheat, corn, kafir, barley, sunflower seed, limestone grit |
| Rapier's Blue Hen Baby Chick Feed, Without Grit | 7588 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, pigeon grass |
| Rapier's Blue Hen Scratch Feed | 9279 | 2.0 | 10.0 | 5.0 | | Corn, oats, clipped barley, whole wheat screenings |
| Red Mill, The, Fairland, R. R. 3, Ind. Rasp Chick Feed | 4540 | 2.3 | 8.5 | 12.0 | | Corn, kafir, millet, whole wheat screenings |
| Reed & Company, H. G., Clymers, Ind. Morningstar Chick Feed | 3059 | 3.0 | 9.5 | 4.0 | | Wheat, corn, kafir, millet seed, linseed meal, oyster shell |
| Morningstar Scratch Feed | 3752 | 2.8 | 8.0 | 5.5 | | Wheat, corn, kafir, oats, buckwheat, sunflower seed, oyster shell |
| Morningstar Developing Food | 3753 | 3.0 | 8.0 | 6.0 | | Wheat, corn, kafir, buckwheat, charcoal, granite grit |
| Reid-Murdock & Company, Chicago, Ill. Farm House Scratch Grains | 7354 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, barley, buckwheat, sunflower seeds |
| Farm House Chick Feed With Grit..... | 7355 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed 1/2% miscellaneous wild seeds occurring in above seeds and grains), charcoal, 6% marble grit |
| Farm House Scratch Grains With Grit..... | 7408 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, barley, buckwheat, sunflower seeds, oyster shells, marble grit |
| Farm House Chick Feed Without Grit..... | 7409 | 2.5 | 10.0 | 5.0 | | Wheat, corn, kafir, millet seed, oat meal, wild buckwheat, (with not to exceed 1/2% miscellaneous wild seeds occurring in above seeds and grains), charcoal |
| Richards & Son, G. W., New Paris, Ohio Keystone Egg Mash | 5506 | 6.0 | 17.0 | 9.0 | | Cayenne pepper, wheat bran, wheat middlings, corn meal, alfalfa meal, cottonseed meal, linseed oil meal, tankage, charcoal |
| Rittenhouse, E. S., Liberty Mills, Ind. "All-In" Chick Starter | 5800 | 2.0 | 9.0 | 5.0 | | Wheat, corn, kafir, millet, hemp, charcoal, bone |
| Ritter-Hennings Company, Louisville, Ky. Shur-Pleez Baby Chick Feed | 5014 | 5.1 | 12.8 | 2.9 | | Wheat, corn, pin head oats, millet seed, flaxseed, whole wheat screenings |
| White Rock Hen Feed | 6863 | 3.2 | 9.7 | 2.5 | | Wheat, corn, kafir, milo maize, sunflower seed, charcoal, limestone grit |
| White Rock Brand Baby Chick Feed | 6993 | 4.0 | 9.0 | 9.0 | | Wheat, corn, steel cut oats, flaxseed, millet seed, whole releaned wheat screenings, charcoal, limestone grit |
| Shur-Pleez Egg and Growing Mash | 8013 | 4.5 | 20.0 | 9.0 | | Wheat bran, wheat middlings, corn gluten meal, corn feed meal, alfalfa meal, meat scraps, bone meal |
| Shur-Pleez Scratch Feed | 8220 | 2.2 | 9.0 | 5.5 | | Wheat, corn, kafir, milo, sunflower seed |
| Bantam Baby Chick Feed | 8319 | 3.1 | 7.2 | 5.5 | | Wheat, corn, pin head oats, flaxseed, whole wheat screenings |
| Good Baby Chick Feed | 8540 | 2.9 | 9.0 | 4.9 | | Wheat, corn, millet seed, steel cut oats, flaxseed, whole wheat screenings, 5% mica and quartz grit |
| Sultan Baby Chick Feed | 9352 | 5.0 | 11.0 | 7.5 | | Wheat, corn, millet seed, pin head oats, whole screenings from wheat and wild seeds (25%) flaxseed, 5% mica quartz grit |
| Tip Top Baby Chick Feed (No Grit)..... | 9353 | 5.5 | 12.0 | 7.4 | | Wheat, corn, millet seed, pin head oats, whole screenings from wheat and wild seeds (25%), flaxseed |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Riverside Milling Company, Clinton, Iowa Sunflower Scratchfeed ----- | 5309 | 2.5 | 9.0 | 3.0 | Wheat, corn, kafir, barley, buckwheat, sunflower seed | |
| Sunflower Scratch Feed With Grit ----- | 5801 | 2.0 | 8.5 | 2.3 | Wheat, corn, kafir, barley, milo maize, buckwheat, sunflower seed, limestone grit | |
| Robey Mills, Chicago, Ill. Velvet Fine Chick Feed With Grit ----- | 9014 | 2.5 | 9.5 | 5.0 | Wheat, corn, millet, oat meal, whole weed seeds from wheat and barley screenings, limestone grit | |
| Velvet Fine Chick Feed No Grit ----- | 9015 | 2.5 | 9.5 | 5.0 | Wheat, corn, millet, oat meal, whole weed seeds from wheat and barley screenings | |
| Rohm Bros., Rockville, Ind. Best Chick Feed ----- | 7790 | 3.0 | 10.0 | 6.0 | Wheat, corn, kafir, millet, steel cut oats, buckwheat, whole wheat screenings, charcoal, oyster shells | |
| Roper & Brown, Hobart, Ind. Hobart Hen Feed ----- | 3476 | 1.8 | 9.0 | 10.0 | Wheat, corn, kafir, barley, buckwheat, shell, grit (mica, feldspar, quartz) | |
| Ross, S. F., Jonesville, Ind. Eureka Chick Feed ----- | 6637 | 2.5 | 8.0 | 4.0 | Wheat, corn, kafir, millet, buckwheat, oyster shells | |
| Schaefer, Karl H., Indianapolis, Ind. Schaefer's Special Scratch Feed ----- | 7191 | 2.0 | 9.0 | 6.0 | Wheat, corn, kafir, barley, oats, milo maize | |
| Schaefer's Extra Scratch Feed ----- | 7506 | 2.5 | 10.0 | 6.0 | Wheat, corn, kafir, barley, oats, whole wheat screenings, peanut meats, peanut germs | |
| Schaefer's Special Chick Feed ----- | 7507 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, steel cut oats, millet, charcoal | |
| Schaefer's Special Poultry Mash ----- | 7660 | 6.0 | 12.0 | 13.0 | Wheat bran, wheat middlings, corn meal, alfalfa meal, linseed meal, beef scraps, peanut germ meal, kafir meal, milo maize meal, ground wheat screenings, charcoal, salt | |
| Schaefer Competitive Scratch ----- | 8373 | 2.0 | 8.0 | 6.0 | Wheat, corn, kafir, oats, barley, whole wheat screenings | |
| Schaefer's Extra Chick Feed ----- | 9381 | 2.0 | 9.0 | 6.0 | Corn, millet, whole millet screenings, whole wheat screenings containing weed seeds, charcoal, marble grit | |
| Shellabarger Elevator Company, Decatur, Ill. Big S. Scratch Feed ----- | 8214 | 2.5 | 9.0 | 5.0 | Wheat, corn, kafir, oats, barley, milo, buckwheat, sunflower seed | |
| Big S. Chick Feed ----- | 8215 | 3.0 | 10.0 | 4.0 | Wheat, corn, kafir, milo, millet, oat meal | |
| Shine & Company, John H., New Albany, Ind. Star Poultry Feed ----- | 4084 | 2.5 | 10.0 | 5.0 | Wheat, corn, oats, kafir, sunflower seed, charcoal, mica grit | |
| Simmons & Norris, Cincinnati, Ohio Fattenum Poultry Mash ----- | 8067 | 5.0 | 19.0 | 6.0 | Wheat middlings, wheat flour, hominy meal, corn meal, oat flour, alfalfa meal, granulated meat, salt | |
| Excello Poultry Mash ----- | 8683 | 4.0 | 19.0 | 10.0 | Wheat bran, wheat middlings, oat flour, hominy meal, corn feed meal, linseed meal, fine ground alfalfa, granulated meat, salt, charcoal | |
| Excello Scratch Feed ----- | 8684 | 3.0 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, sunflower seed | |
| S. and N. Scratch Feed ----- | 9336 | 2.5 | 10.0 | 6.0 | Wheat, corn, kafir, barley, oats, sunflower seed, limestone grit | |
| S. and N. Chick Feed ----- | 9379 | 2.5 | 10.0 | 6.0 | Wheat, corn, kafir, oat groats, limestone grit | |
| Excello Chick Feed ----- | 9380 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, oat groats | |
| Slick & Company, L. E., Bloomington, Ill. Slick's Safety First Scratch Feed (No Grit)--- | 9007 | 2.5 | 10.0 | 6.0 | Wheat, corn, kafir, milo, oats, barley, buckwheat, sunflower seed | |
| Slick's Safety First Scratch Feed (With Grit)----- | 9008 | 2.5 | 10.0 | 6.0 | Wheat, corn, kafir, milo, oats, barley, buckwheat, sunflower seed, not over 1% oyster shell, 1% limestone grit | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Small & Company, Inc., W. H., Evansville, Ind. "Poultry Feed" ----- | 4471 | 2.5 | 8.5 | 5.0 | Corn, kafir, sunflower seed, salvage wheat, oyster shell |
| Southern Seed Company, Louisville, Ky. Atlas Chick Feed ----- | 3775 | 3.0 | 10.0 | 6.0 | Wheat, corn, kafir, millet, milo maize, buckwheat |
| Atlas Scratch Feed ----- | 3776 | 3.0 | 10.0 | 6.0 | Wheat, corn, kafir, barley, oats, milo maize, sunflower seed, buckwheat |
| Indiana Economy Scratch Feed ----- | 7994 | 2.5 | 9.5 | 6.0 | Wheat, corn, kafir, oats, whole wheat screenings, mussel shells |
| Indiana Economy Chick Feed ----- | 7995 | 2.5 | 9.5 | 6.0 | Wheat, corn, kafir, oats, millet, whole wheat screenings, mussel shells |
| South Side Cereal Mills, Fort Wayne, Ind. Wayne Scratch Feed ----- | 6251 | 2.0 | 9.0 | 6.0 | Wheat, corn, kafir, barley, rye, buckwheat, sunflower seed, charcoal |
| Wayne Chick Feed ----- | 6624 | 2.0 | 9.0 | 6.0 | Wheat, corn, millet seed, charcoal |
| Sowash, E. K., Middletown, Ind. E. K. Chick Starter & Feed ----- | 7492 | 2.0 | 9.0 | 7.0 | Wheat, corn, kafir, millet, whole wheat screenings, charcoal, oyster shells |
| Sprague, Warner & Company, Chicago, Ill. Cero Brand Poultry Feed ----- | 8301 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, barley, buckwheat, sunflower seeds |
| Chico Brand Chick Feed ----- | 8302 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, milo, millet seed, oat meal, wild buckwheat, (not to exceed 1/2% miscellaneous wild seeds occurring in above seeds and grains) charcoal |
| Spratt's Patent, Ltd., Newark, N. J. Chiegrain ----- | 6034 | 3.0 | 14.0 | 5.0 | Wheat, kafir, millet, buckwheat, green peas, hemp, Mexican peas, popcorn, canary, rice, meat, charcoal, bone |
| Chick Meal ----- | 6035 | 2.5 | 20.0 | 2.0 | Wheat flour, meat |
| Poultry Food ----- | 6036 | 3.5 | 20.0 | 2.0 | Wheat flour, meat |
| Starr, J. R., Winamac, Ind. Mixed Poultry Feed ----- | 8602 | 2.5 | 9.5 | 7.0 | Wheat, corn, oats, buckwheat, millet |
| Starr Mills, South Bend, Ind. Scratch Feed ----- | 6003 | 2.0 | 9.0 | 5.0 | Wheat, corn, kafir, oats, barley, rye, sunflower seed, charcoal |
| Scratch Feed With Grit ----- | 6933 | 2.0 | 8.0 | 4.0 | Wheat, corn, kafir, milo maize, whole wheat screenings, charcoal, limestone grit |
| Steckley, Geo., Kendallville, Ind. Poultry Mash ----- | 3489 | 4.5 | 16.0 | 9.0 | Wheat bran, middlings, corn gluten feed, corn feed meal, beef scraps, linseed meal |
| Steinmesch Feed Company, St. Louis, Mo. Steinmesch Mixed Feed for Poultry ----- | 4025 | 3.5 | 10.0 | 6.0 | Wheat, corn, kafir, barley, oats, sunflower seed, flaxseed, rape, mustard seed |
| Stone Quarry Mills, Spiceland, Ind. Blue Ribbon Chick & Hen Feed ----- | 7579 | 2.0 | 5.0 | 7.0 | Wheat, corn, kafir, oats, millet, charcoal, oyster shell |
| Sugarine Company, The, Peoria, Ill. Sugarine Chick Feed ----- | 6562 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet |
| Sugarine Chick Feed With 5% Grit ----- | 6563 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, marble grit |
| Sugarine Scratch Feed ----- | 8288 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed |
| Sugarine Pigeon Feed ----- | 8916 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, peas, buckwheat, sunflower seed |
| Sugarine Poultry Mash ----- | 8917 | 3.5 | 18.0 | 12.0 | Wheat bran, corn feed meal, corn distillers dried grains, alfalfa meal, linseed meal, meat scraps, salt |
| Universal Scratch Feed ----- | 8918 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed |
| Universal Scratch Feed, With 5% Grit ----- | 8919 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seed, marble grit |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Sugarine Company, The, Peoria, Ill. | | | | | |
| Ideal Scratch Feed ----- | 9046 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed |
| Ideal Scratch Feed With 5% Grit ----- | 9047 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed, marble grit |
| Ideal Chick Feed, With 5% Grit ----- | 9048 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, pigeon grass, marble grit |
| Ideal Chick Feed ----- | 9096 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, millet, pigeon grass |
| Thomas Milling Company, Marion, Ind. | | | | | |
| Tip Top Chick Feed ----- | 8453 | 2.5 | 9.0 | 4.0 | Wheat, corn, millet, charcoal, oyster shell |
| Tip Top Scratch Feed ----- | 8454 | 2.5 | 9.0 | 5.0 | Wheat, corn, barley, oats, buckwheat, charcoal, oyster shell |
| Union Feed & Poultry Company, Lafayette, Ind. | | | | | |
| Union Poultry Mash ----- | 7184 | 3.5 | 12.0 | 10.0 | Oats, wheat bran, wheat middlings, corn gluten feed, corn meal, alfalfa meal, linseed meal, beef scraps, blood meal, ground wheat screenings, charcoal |
| Union Grain & Feed Company, The, Anderson, Ind. | | | | | |
| Union Mash ----- | 7065 | 2.5 | 11.0 | 11.0 | Wheat bran, wheat shorts, corn meal, alfalfa meal, meat meal, charcoal |
| Union Chick Feed With Grit ----- | 8511 | 2.0 | 9.0 | 10.0 | Wheat, corn, kafir, millet seed, limestone grit |
| Union Chick Feed Without Grit ----- | 8512 | 2.0 | 9.0 | 10.0 | Wheat, corn, kafir, millet seed |
| Diamond Scratch Feed With Grit ----- | 8622 | 2.0 | 9.0 | 6.0 | Wheat, corn, kafir, oats, barley, mlo, sunflower seed, linseed oil cake, limestone grit |
| Diamond Scratch Feed Without Grit ----- | 8623 | 2.0 | 9.0 | 6.0 | Wheat, corn, kafir, oats, barley, mlo, sunflower seed, linseed oil cake |
| Walker & Company, P. M., Loogootee, Ind. | | | | | |
| Mixed Chicken Feed ----- | 7809 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, whole wheat screenings, oyster shells |
| Weiss Alfalfa Stock Food Company, The Otto, Wichita, Kansas | | | | | |
| Otto Weiss Hen Feed ----- | 1784 | 3.0 | 13.8 | 2.5 | Corn, kafir, oats, cane seed, wheat, millet, beef scraps, bone, limestone grit, oyster shells |
| Otto Weiss Chick Feed ----- | 1785 | 3.0 | 13.6 | 2.8 | Kafir, wheat, oats, millet, cane seed, beef scraps, bone, limestone grit |
| Wells, Guy M., Knox, Ind. | | | | | |
| Wells Mixed Chicken Feed ----- | 6308 | 2.5 | 9.0 | 6.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, oyster shell |
| Western Grain Products Company, West Hammond, Ill. | | | | | |
| Calumet Scratch Feed—No Grit ----- | 7422 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed |
| Calumet Scratch Feed—With Grit ----- | 7423 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seed, 5% limestone grit |
| Hammond Scratch Feed—No Grit ----- | 7424 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, linseed oil cake |
| Hammond Scratch Feed—With Grit ----- | 7425 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, linseed oil cake, 5% limestone grit |
| Whelan, Omer G., Richmond, Ind. | | | | | |
| Scratching Grains With Grit ----- | 8128 | 2.9 | 9.0 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, charcoal, oyster shells, limestone grit |
| Scratching Grains Not Grit ----- | 8129 | 3.0 | 9.5 | 5.0 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed, charcoal |
| Whelan's Chick Feed ----- | 8551 | 2.0 | 8.0 | 5.0 | Wheat, corn, kafir, millet, steel cut oats, whole clover seed, screenings, charcoal, limestone grit |
| Wilkinson, A. E., New Castle, Ind. | | | | | |
| Rapid Developer ----- | 6800 | 2.5 | 9.0 | 6.0 | Wheat, corn, kafir, millet, buckwheat, cane seed |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Wilkinson, A. E., New Castle, Ind. Wilkinson's La-U-Se Poultry Feed With Grit..... | 7063 | 2.5 | 10.0 | 5.0 | Wheat, corn, kafir, oats, millet, cane seed, sunflower seed, linseed oil cake, limestone grit |
| Wilkinson's "Hen-O-Lay Mash" | 9134 | 2.0 | 12.0 | 5.0 | Wheat bran, wheat middlings, ground wheat screenings, corn gluten feed, corn feed meal, linseed oil meal, heneta grit, (sodium, lime, silica, phosphorus compounds) |
| Wilson & Son, John S., Evansville, Ind. Wilson's Scratch Feed | 8041 | 3.0 | 8.0 | 6.0 | Wheat, corn, clipped oats, sunflower seed, oyster shell, heneta grit, (sodium, lime, silica, phosphorus compounds) |
| Wood, Stubbs & Company, Louisville, Ky. Shawnee Brand Scratch Feed | 7331 | 3.0 | 10.0 | 4.0 | Wheat, corn, kafir, milo maize, barley, buckwheat, sunflower seed |
| Shawnee Scratch Feed 5% Grit | 7500 | 3.0 | 10.5 | 4.0 | Wheat, corn, kafir, milo maize, barley, buckwheat, sunflower seed, 5% marble grit |
| Shawnee Chick Feed | 7549 | 3.5 | 10.0 | 3.1 | Corn, kafir, milo maize, millet seed, flaxseed, whole wheat screenings |
| Shawnee Brand Pigeon Feed | 7652 | 2.0 | 10.0 | 4.0 | Wheat, corn, kafir, milo maize, Canada peas, buckwheat, sunflower seed |
| Ziliak & Schafer Milling Company, Evansville Branch, Evansville, Ind. Acme Scratch Feed | 8694 | 2.0 | 9.0 | 5.0 | Wheat, corn, kafir, milo, barley, emmer, sunflower seed, whole wheat screenings, limestone grit |
| Zionsville Milling Company, Zionsville, Ind. Scratch Feed | 7061 | 2.0 | 9.0 | 10.0 | Wheat, corn, kafir, oats, cane seed, buckwheat |
| Zook Bros., Logansport, Ind. Faultless Chick Feed | 5909 | 2.5 | 8.0 | 5.0 | Wheat, corn, kafir, oats, millet |
| Faultless Hen Food | 5910 | 3.0 | 9.0 | 7.0 | Wheat, corn, kafir, barley, oats, milo maize, sunflower seed |
| CONDIMENTAL STOCK AND POULTRY FEEDS | | | | | |
| American Druggists Syndicate, Long Island City, N. Y. Safe-T-Kros Regulateur | 8416 | 1.5 | 8.5 | 5.0 | Gentian, nux vomica, capsicum, white arsenic, iron sulphate, sodium sulphate, wheat middlings |
| Amos, Carl, Kokomo, Ind. ⁵⁰ The Amos Stock Tonic | 7808 | 6.2 | 10.0 | 40.3 | Blood root, sulphur, horse medley, fenugreek, asafetida, copperas, tobacco, salt, ground bituminous coal, flaxseed meal, old process linseed oil meal |
| Amos Worm Powder | 8377 | 2.0 | 10.0 | 5.0 | Copperas, santonin, Indian worm seed, calomel, Epsom salt, May apple root, aloes, slippery elm, soda, reddog flour |
| Amos Stock Tonic Company, The, Kokomo, Ind. The Amos Horse, Cattle and Sheep Tonic..... | 8884 | 4.0 | 5.0 | 40.0 | Horse medley, sulphur, Indiana worm seed, red percoon root, asafetida, fenugreek, copperas, bicarbonate of soda, tobacco, salt, linseed oil meal |
| Amos Hog Tonic | 9024 | 3.0 | 5.0 | 40.0 | Red percoon root, sulphur, copperas, horse medley, santonin, asafetida, fenugreek, Indiana worm seed, tobacco, coal, Epsom salt, salt, flaxseed meal, old process linseed oil meal, reddog flour, standard wheat middlings |
| Ashland Stock Food Company, Ashland, Ohio Ashland Poultry Food Digester | 4771 | 2.2 | 10.2 | 5.5 | Venetian red, red pepper, sulphate of iron, hyposulphite of soda, salt, oyster shells, wheat middlings |
| Ashland Stock Food Digester | 4772 | 4.4 | 14.3 | 4.7 | Fenugreek, nux vomica, sulphate of iron, hyposulphite of soda, charcoal, salt petre, salt, wheat middlings |

⁵⁰ Succeeded by The Amos Stock Tonic Co.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Barker, Moore & Mein Medicine Company, Philadelphia, Pa. Barker's Special Poultry Remedy ----- | 6678 | 5.0 | 18.0 | 10.0 | | Fenugreek, ginger, gentian, resin, pennyroyal, cascara sagrada, pepper, iron oxide, salt petre, sulphate of iron, charcoal, sulphur, salt, chalk, linseed meal |
| Barker's Chemical & Vegetable Horse, Cattle & Poultry Medicinal Powder ----- | 8007 | 5.0 | 20.0 | 41.0 | | Charcoal, gentian, sodium nitrate, sulphate of iron, fenugreek, flowers of sulphur, rosin, salt, African ginger, pennyroyal herb, cascara sagrada, linseed cake meal |
| Betz, Gatus N., Wabash (Celina, R. R. 2), Ohio Jones Red Powder ----- | 6797 | 1.0 | 3.5 | 10.0 | | Nux vomica, cayenne pepper, Venetian red, flowers of sulphur, oxide of iron, wheat middlings |
| Blackman Stock Remedy Company, Chattanooga, Tenn. Owen's Health and Egg Producer ----- | 6242 | --- | 8.0 | 5.0 | | Rosin, sulphur, copperas, red pepper, charcoal, oyster shells, bone flour, blood meal |
| Blatchford Calf Meal Factory, Waukegan, Ill. ⁵¹ Blatchford's Genuine Old English Tonic and Regulator ----- | 7271 | 8.0 | 21.0 | 9.5 | | Peruvian bark, gentian, fenugreek, anise, ginger, licorice, sulphate of iron, sulphate of soda, chloride of sodium, sarsaparilla, sulphur, charcoal, locust bean meal, flaxseed, wheat flour, rice polish, blood flour, barley meal, bean meal, pea meal, old process linseed oil meal, cocoa shell meal, coconut meal, cottonseed meal, dried milk |
| Blatchford's Lamb Meal ----- | 7767 | 4.0 | 20.0 | 6.0 | | Anise seed, locust bean meal, barley meal, blood flour, linseed oil meal, rice polish, bean meal, cottonseed meal, corn meal, wheat flour, salt |
| Blatchford's Topping Off Meal, (Formerly, Sugar & Flaxseed) ----- | 7808 | 10.0 | 25.0 | 8.0 | | Gentian, anise, sulphate of soda, locust bean meal, bean meal, pea meal, cottonseed meal, old process linseed oil meal, cocoa shell meal, flaxseed, rice polish, coconut meal, 1/2% salt |
| Blatchford Calf Meal Company, Waukegan, Ill. Blatchford's "Fill the Basket" Egg Mash ----- | 8839 | 4.0 | 19.0 | 10.0 | | Fenugreek, anise, capsicum, locust bean meal, flaxseed, wheat flour, rice polish, blood flour, barley meal, malt sprout meal, bean meal, pea meal, old process linseed oil meal, cocoa shell meal, coconut meal, cottonseed meal, dried milk, alfalfa, corn meal, oat meal, wheat bran, wheat middlings, meat scraps, fish, bone, salt, powdered limestone |
| Blatchford's Milk Mash ----- | 9127 | 4.0 | 20.0 | 7.5 | | Fenugreek, anise, locust bean meal, flaxseed, wheat flour, barley meal, malt sprout meal, blood flour, bean meal, pea meal, rice polish, old process linseed oil meal, cocoa shell meal, coconut meal, cottonseed meal, dried milk, corn meal, oat meal, wheat middlings, meat scraps, fish, bone, salt, powdered limestone |
| Blue Moon Corrector Company, The, Crawfordsville, Ind. The Blue Moon Hog Corrector ----- | 6900 | 2.0 | 11.0 | 10.0 | | Gentian root, mandrake root, madder, African ginger, asafetida, calcium carbonate, sodium bicarbonate, sodium sulphate, sodium chloride, Epsom salt, sulphur, ferrous sulphas exicated (dried copperas), charcoal, linseed meal |

⁵¹ Succeeded by Blatchford Calf Meal Company

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Blue Moon Stock Corrector Company, The, ⁵² Crawfordsville, Ind. Blue Moon Stock Corrector | 3137 | 2.2 | 12.0 | 5.0 | | Gentian, asafetida, ginger, mandrake, fenugreek, resin, sodium bicarbonate, sodium sulphate, sodium chloride, Epsom salt, potassium nitrate, sulphate of iron, sulphur, linseed meal |
| Boulden, Wm., Cyclone, Ind. Boulden Stock Food | 1392 | 3.1 | 15.2 | 11.0 | | Salt, bicarbonate of soda, asafetida, sulphur, horse medley, blood root, senna seed, ginger, charcoal, salt petre, linseed cake |
| Bradick, B. F., V. S., Grayville, Ill. Dr. Bradick's Medicated Stock Tonic | 7694 | 4.0 | 15.5 | 6.5 | | Black antimony, madder, worm seed, ginger, fenugreek, nux vomica, gentian, copperas, charcoal, potassium nitrate (salt petre), sulphur, Glauber's salt, Epsom salt, bicarbonate of soda, salt, wood and corn cob ashes, linseed oil cake |
| Brinkman, W. E., Fort Wayne, Ind. Superior Poultry Food | 1507 | 2.5 | 7.0 | 5.0 | | Oat meal, corn meal, middlings, bone meal, Venetian red, capsicum, salt |
| Buckeye Company, The, Lorain, Ohio Buckeye Poultry Powder | 6081 | --- | --- | --- | | Gentian root, Venetian red, sulphate of iron, hyposulphite of soda, Glauber's salt, nux vomica, salt petre, charcoal, sodium chloride, ground wheat screenings |
| Buckeye Stock Conditioner | 6082 | --- | --- | --- | | Gentian root, ginger, fenugreek seed, anise seed, nux vomica, sulphate of iron, Glauber's salt, salt petre, Epsom salt, charcoal, sodium chloride, ground wheat screenings |
| Buffington Famous Condition Powder Company, Petroleum, Ind. The Buffington Famous Condition Powder.... | 3400 | 4.0 | 15.0 | 9.0 | | Copperas, sulphur, fenugreek, salt petre, linseed meal |
| Burch & Company, Inc., F. S., Chicago, Ill. Petaluma Egg Producer | 4617 | 2.0 | 18.0 | 5.0 | | Ferrous sulphate, sodium chloride, sulphur, calcium carbonate, tobacco, ashes, dried blood, ground screenings from flaxseed |
| Sandford's Egg Producer | 4969 | 2.0 | 18.0 | 5.0 | | Ferrous sulphate, sodium chloride, sulphur, calcium carbonate, tobacco, ashes, dried blood, ground screenings from flaxseed |
| Busch Remedy Company, Inc., The, Evansville, Ind. Busch's Poultry Laying Tonic | 3999 | 1.2 | 15.0 | 8.5 | | Gentian, ginger, capsicum, nux vomica, cantharides, iron sulphate, potassium nitrate, Epsom salt, Venetian red, bone meal, oyster shell, malt sprouts |
| Capitol Food Company, The, Tiffin, Ohio Capitol Stock Remedy | 4611 | --- | --- | 10.0 | | Gentian, fenugreek, anise seed, quassia, wormseed, nux vomica, magnesium sulphate, ferrous sulphate, sodium chloride, charcoal, screenings from flaxseed |
| Capitol Poultry Remedy | 4612 | --- | --- | 9.0 | | Capsicum, nux vomica, quassia, wormseed, magnesium sulphate, ferrous sulphate, iron oxide, potassium permanganate, sulphur, screenings from flaxseed |
| Capitol Animal Regulator | 4613 | --- | --- | 10.0 | | Gentian, anise seed, quassia, nux vomica, copperas, wormseed, Epsom salt, sodium bicarbonate, charcoal, screenings from flaxseed |

⁵² Succeeded by The Blue Moon Corrector Co.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Carpenter Company, W. D., Syracuse, N. Y. Nutriotone ----- | 7398 | --- | --- | --- | | Caraway, anise, fenugreek, coriander, quassia, nux vomica, wild cherry, xanthorrhiza, cascara sagrada, ginger, sulphur, charcoal, sodium bicarbonate, sodium chloride, linseed meal, flaxseed meal, cottonseed feed, bean meal, ground screenings from wheat, flax, seeds |
| Chambers Stock Powder Company, The, Rossville, Ill. Chambers Poultry Powder ----- | 3881 | 3.0 | 17.0 | 4.5 | | Capsicum, Venetian red, sulphur, copperas, resin, bicarbonate of soda, salt, oyster shell, flaxseed meal |
| Chambers Hog Remedy ----- | 3882 | 2.8 | 15.0 | 4.0 | | Copperas, resin, sulphur, bicarbonate of soda, Epsom salt, salt petre, salt, flaxseed meal |
| Chambers Horse Conditioner ----- | 3883 | 2.5 | 13.5 | 3.5 | | Copperas, resin, sulphur, bicarbonate of soda, Epsom salt, salt, charcoal, cold pressed flaxseed meal, salt petre |
| Chambers Cattle Powder ----- | 3884 | 2.5 | 15.0 | 4.0 | | Copperas, resin, sulphur, bicarbonate of soda, salt, cold pressed flaxseed |
| Christmas Medicine Company, W. C., Boonville, Ind. "Christmas" Stock Food ----- | 9371 | 1.5 | 10.0 | 8.0 | | Gentian, ginger, capsicum, sassafras, percoon root, poplar bark, charcoal, sodium chloride, wheat middlings |
| "Christmas" Poultry Food ----- | 9372 | 1.5 | 10.0 | 9.0 | | Gentian, ginger, copperas, capsicum, sassafras, charcoal, bone, wheat middlings |
| Conkey Company, The G. E., Cleveland, Ohio Conkey's Buttermilk Starting Food ----- | 7212 | 3.0 | 12.0 | 4.0 | | Gentian root, iron sulphate, (copperas), mustard seed, wheat, corn, hulled oats, wheat middlings, bone, evaporated buttermilk |
| Crosier Stock & Poultry Powder Company, New Albany, Ind. Crosiers' Poultry Powder ----- | 4640 | 2.0 | 5.0 | 6.0 | | African ginger, fenugreek seed, blood root, American Venetian red, sulphur, wood ashes, mustard bran, ground flaxseed |
| Crosiers Horse & Cattle Powder ----- | 4641 | 4.0 | 5.0 | 11.0 | | African ginger, gentian root, blood root, black antimony, sassafras bark, rosin, iron sulphate, sulphur, charcoal, wood ashes, ground flaxseed, salt petre |
| Dairy Association Company, The, Lyndonville, Vt. Kow Kure ----- | 7591 | --- | --- | 7.0 | | Fenugreek, ginger root, capsicum, spearmint, asafetida, elecampane, uva ursi, damiana leaves, witch hazel leaves, garget root, boneset, aletria, cinchona, black haw bark, potassium nitrate, Epsom salt, carbonate of iron, wheat middlings |
| Daisy, W. H., Kokomo, Ind. Daisy Horse, Cattle, Sheep and Hog Tonic.... | 8723 | 5.0 | 5.0 | 15.0 | | Fenugreek, asafetida, salt petre, copperas, horse medley, bicarbonate of soda, ginger, blood root, black pepper, flowers of sulphur, tobacco dust, wood ashes, salt, ground flaxseed |
| Daniels, Inc., Dr. A. C., Boston, Mass. Dr. A. C. Daniels' Cow Invigorator ----- | 6271 | 5.0 | 10.5 | 12.7 | | Poplar bark, Epsom salt, salt, spearmint, carbonate of iron, nitre, (salt petre) elecampane, ginger, pepper, sulphur, poke root, boneset, asafetida, gentian, fenugreek, althaea, peruvian bark, life root, queen of the meadows, water pepper, bone meal |
| Davis Stock Food Company, Chicago, Ill. Davis Poultry Food Tonic ----- | 3403 | 3.0 | 6.0 | 12.0 | | Ginger, capsicum, sulphur, iron oxide, sodium sulphate, sodium chloride, acid phosphate, charcoal, bone meal, wheat middlings |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Davis Stock Food Company, Chicago, Ill. Davis Stock Food Tonic ----- | 3404 | 3.0 | 6.0 | 12.0 | | Gentian, anise, mandrake, fennel, wormseed, sulphur, nux vomica, iron sulphate, acid phosphate, sodium chloride, charcoal, wheat middlings |
| Deam & Spivey, Bluffton, Ind. Deam's Egg Food & Poultry Powder ----- | 4585 | --- | --- | --- | | Sodium chloride, sodium sulphate, sodium bicarbonate, sulphur, iron sulphate, fenugreek, black antimony, gentian, ginger, potassium nitrate, potassium bitartrate, asa-fetida, capsicum, Venetian red, bone meal, wheat shorts, linseed oil cake |
| Ehrmann & Company, Terre Haute, Ind. Ehrmann's Poultry Food ----- | 666 | 15.0 | 6.0 | 24.7 | | Pork and beef cracklings, bone, meat, cayenne pepper, carbolic acid |
| Erb, Jr., Fred, West Lafayette, Ind. Big Chick Feed ----- | 4480 | 13.0 | 8.0 | 5.0 | | Cracked corn, meat, sulphur, oil of tar, linseed oil |
| Little Chick Feed ----- | 4481 | 13.5 | 6.0 | 4.0 | | Bolted corn meal, meat, sulphur, oil of tar, linseed oil |
| Scratch Feed ----- | 4628 | 5.0 | 13.5 | 5.0 | | Wheat, corn, oats, meat, sulphur, linseed oil, oil of tar |
| Fred Erb, Jr., Stock Food ----- | 5431 | 11.5 | 19.5 | 4.0 | | Sulphur, oil of tar, linseed oil, meat, corn meal |
| Erb's Egg Maker Quick ----- | 6523 | 9.0 | 15.0 | 6.0 | | Linseed oil, sulphur, oil of tar, bolted corn meal, meat |
| Fleck, J. J., Tiffin, Ohio Flecks Poultry Powder ----- | 4520 | --- | --- | 9.0 | | Fenugreek, sassafras, sage leaves, bayberry bark, Venetian red, cayenne pepper, bicarbonate of soda, sulphate of magnesium, mustard bran, bone meal, oyster shells |
| Furst-McNess Company, Freeport, Ill. F. W. McNess Poultry Tonic ----- | 6932 | 9.6 | 4.8 | 12.9 | | Gentian, quassia, ginger, capsicum, copperas, sulphur, charcoal, Venetian red, oyster shell, wheat middlings |
| F. W. McNess Stock Food ----- | 8044 | 8.2 | 13.5 | 12.4 | | Capsicum, coriander, ginger, quassia, fenugreek, areca nut, sulphur, sulphate of iron, potassium nitrate, sodium sulphate, salt, charcoal, wheat middlings |
| Geiger-Fishback Company, Indianapolis, Ind. Hog Feed ----- | 6369 | 1.5 | 7.0 | 2.0 | | Bicarbonate of soda, phosphate of lime, salt, wheat flour, corn flour, rice flour |
| German Reliable Medicine Company, Decatur, Ind. German Reliable Stock Food ----- | 6737 | 0.6 | 10.0 | 5.0 | | Fenugreek, elecampane, gentian, blood root, sulphur, wood ashes, salt, sugar, ground flaxseed meal, wheat middlings |
| Gibson Live Stock & Feed Company, Princeton, Ind. Pilgrim Hog Feed ----- | 9407 | 5.0 | 17.0 | 14.0 | | Gentian, sodium bicarbonate, copperas, sulphur, wormseed, Epsom salt, wheat shorts, rye shorts, rye bran, ground rye screenings, velvet bean feed, linseed meal, corn feed meal, digester tankage, salt |
| Gifford, Charlie, Russiaville, Ind. Gifford's Stock Tonic & Worm Expeller ----- | 8712 | --- | --- | --- | | Sulphate of iron, nux vomica, horse medley, sulphur, magnesium sulphate, Spanish brown, sodium chloride |
| Golden Drop Medicine Company, Chrisney, Ind. Peerless Poultry Powder ----- | 6041 | 0.5 | 3.0 | 3.0 | | Copperas, copper sulphate, capsicum, Venetian red, nitrate of potassium, wheat shorts |
| Guarantee Food Company of Pennsylvania, Lewisburg, Pa. Keystone Stock Conditioner ----- | 8478 | --- | --- | --- | | Flowers of sulphur, copperas, Epsom salt, fenugreek, gentian, African ginger, Bombay capsicum, ground cocoa shells, buckwheat hulls |
| Hale, G. S., Fort Wayne, Ind. Hale's Spanish Poultry Powder ----- | 750 | 3.7 | 14.0 | 10.0 | | Frustrum powder (corn meal) sulphur, Venetian red, black antimony, capsicum |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Harlan Products Company, Indianapolis, Ind. Pan-lan Stock Regulator | 9271 | 4.5 | 25.0 | 6.5 | | Gentian, fenugreek, sulphur, sanguinaria, carbo ligni, asafetida, potassium tartrate, ginger, mandrake, populace alba, sodium chloride, linseed oil meal |
| Pan-lan Poultry Regulator | 9292 | 4.5 | 25.0 | 6.5 | | Gentian, fenugreek, sulphur, sanguinaria, carbo ligni, asafetida, potassium tartrate, ginger, mandrake, populace alba, sodium chloride, oyster shell, linseed oil meal |
| Heitman Bros., Holland, Ind. H. B. Poultry Remedy and Egg Producer..... | 5006 | 5.0 | 3.0 | 5.0 | | Borax, cream of tartar, salt, bicarbonate of soda, capsicum, nitrate of potash, resin, oxide of calcium, black antimony, ground flaxseed |
| H. B. Horse and Cattle Powder | 5007 | 1.0 | 7.0 | 5.0 | | Sulphur, Glauber's salt, bicarbonate of soda, Jamaica ginger, fenugreek, black antimony, salt, linseed meal |
| Henderson & Company, W. D., Fort Wayne, Ind. Atlas Medicated Stock Salt | 4839 | ---- | ---- | 10.0 | | Fenugreek, copperas, gentian root, rosin, chalk, salt petre, salt, charcoal, linseed oil meal |
| Herb Medicine Company, The, Springfield, Ohio Lightning Horse, Cattle & Poultry Powders.. | 5251 | ---- | ---- | 6.0 | | Fenugreek, sulphur, salt petre, Epsom salt, rosin, flaxseed meal, linseed oil cake meal |
| Hess & Clark, Dr., Ashland, Ohio Dr. Hess Poultry Pan-a-ce-a | 7758 | 1.0 | 2.0 | 26.0 | | Quassia, nux vomica, potassium nitrate, calcium carbonate, sodium hyposulphite, sodium chloride, iron sulphate, iron oxide, fine ground cottonseed hulls |
| Dr. Hess Stock Tonic | 7759 | 1.0 | 2.0 | 24.0 | | Quassia, nux vomica, charcoal, potassium nitrate, sodium sulphate, magnesium sulphate, sodium chloride, iron sulphate, fenugreek, fine ground cottonseed hulls |
| Hocker, Melvin, Elwood, Ind. Hocker's Tonic | 4282 | 0.8 | 5.0 | 1.5 | | Glauber's salt, antimony sulphide, sulphur, fenugreek, salt petre, alum, charcoal, linseed meal |
| Hog Joy System, Springfield, Ill. Gro-Fast | 7446 | ---- | ---- | ---- | | Vegetable ash containing silica, iron, alumina, calcium, magnesium, sulphur, sodium, potassium and phosphorus compounds |
| Home Medicine Company, The, Dallas City, Ill. K. K. Conditioner | 4965 | ---- | ---- | 10.0 | | Fenugreek, gentian, nux vomica, sulphur, hypo sulphite of soda, potassium nitrate, sodium chloride, linseed oil meal, wheat middlings |
| K. K. Poultry Tonic | 4966 | ---- | ---- | 5.0 | | Ginger, black pepper, nux vomica, sulphur, bicarbonate of soda, iron sulphate, carbonate of iron, oyster shells, wheat middlings |
| Illinois Stock Food Company, Paris, Ill. Illinois Stock Food | 3986 | 5.0 | 15.0 | 7.0 | | Sulphur, ginger, sulphate of iron, (copperas) sodium hypo phosphite, charcoal, sugar, wheat middlings, linseed meal |
| Indispensable Chemical Company, Kokomo, Ind. Indispensable Condition Powder | 7936 | ---- | ---- | 10.0 | | Gentian, sulphur, sodium chloride, copperas, lime, anise, charcoal, ash, Epsom salt |
| International Stock Food Company, Minneapolis, Minn. Special International Medicinal Poultry Food Tonic | 7421 | ---- | ---- | ---- | | Sassafras, gentian, copperas, calcium carbonate, mustard, ginger, charcoal, magnesium carbonate, poplar bark, capsicum, quassia, mustard bran, quartz grit |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| International Stock Food Company, Minneapolis, Minn. International Medicinal Stock Food Tonic----- | 7940 | ---- | ---- | 20.0 | | Salt petre, gentian, mustard, ginger, capsicum, charcoal, quassia, cinchona bark, rosin weed, colombo, poplar bark, iron sulphate, (copperas), nux vomica, sulphur, salt, prepared meal from wheat, oats, rye and barley |
| International Hog Worm Powder ----- | 9080 | ---- | ---- | 33.0 | | Areca nut, wormseed, blue vitriol, naphthalin, sulphur, bicarbonate of soda, hypo sulphite of soda, Glauber's salt, black antimony, salt, charcoal, prepared meal from wheat, oats, rye and barley |
| International Hog Tonic ----- | 9081 | ---- | ---- | 25.0 | | Capsicum, ginger, gentian, quassia, cinchona bark, rosin weed, colombo, mustard, poplar bark, iron sulphate (copperas) nux vomica, sulphur, salt petre, salt, charcoal, Glauber's salt, prepared meal from wheat, oats, rye and barley |
| Iowa City Food & Remedy Company, Iowa City, Iowa Iowa City Stock Tonic ----- | 5550 | 6.9 | 28.3 | 7.5 | | Gentian, ginger, fenugreek, anise seed, licorice, charcoal, salt, linseed meal |
| Jordan, Geo. M., Vincennes, Ind. G. M. J.—“Pig Meal” ----- | 9267 | 4.0 | 17.5 | 10.0 | | Gentian, quassia, powdered senna leaves, Epsom salt, charcoal, sulphate of iron, (copperas), sulphur, tobacco, salt, wheat shorts, ground wheat screenings, corn feed meal, digester tankage, rye bran, rye middlings (with ground mill run rye screenings) |
| G. M. J. Chick Chowder ----- | 9268 | 3.5 | 20.0 | 10.0 | | Gentian, quassia, powdered senna leaves, Epsom salt, charcoal, sulphate of iron (copperas) sulphur, tobacco, salt, wheat shorts, wheat bran, ground wheat screenings, rye bran, rye middlings, ground rye screenings, corn feed meal, digester tankage, alfalfa meal, molasses |
| K. & B. Medicine Company, Kirklín, Ind. K. & B. Hog Tonic ----- | 8349 | 4.0 | 14.0 | 13.0 | | Gentian, ginger, copperas, colombo, madder, sulphur, wood charcoal, sodium bicarbonate, salt petre, Epsom salt, Glauber's salt, salt, linseed meal |
| King Company, The, Rockford, Ill. King Poultry Tonic ----- | 7945 | 3.6 | 8.1 | 11.5 | | Spanish flies, African capsicum, gentian root, African ginger, Venetian red, American sulphur, ground cocoa shells, ground mussel shells, alfalfa meal, American shipstuff (wheat middlings, bran) |
| King Stock Tonic ----- | 7946 | 2.0 | 7.3 | 15.7 | | Sulphate of iron, gentian root, elecampane root, salts of tartar, ginger root, mandrake root, cascara sagrada bark, fenugreek seed, American wormseed, anise seed, pumpkin seed, juniper berries, African capsicum, coriander seed, sodium bicarbonate, American sulphur, areca nuts, sodium chloride, cocoa shells, charcoal, linseed meal, American shipstuff (wheat middlings, bran) |
| Klein Lambert Company, The, Chicago, (Blue Island), Ill. O. K. Stock Food ----- | 5908 | 5.0 | 25.0 | 12.0 | | Gentian, fenugreek, sodium chloride, linseed meal, charcoal |
| O. K. Poultry Food ----- | 5909 | 5.0 | 25.0 | 8.0 | | Gentian, fenugreek, sodium chloride, subcarbonate of iron, wheat middlings, linseed meal, charcoal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Kokomo Hog Remedy Company, Kokomo, Ind. Digestion Regulator for Hogs ----- | 9317 | 4.5 | 22.0 | 9.0 | Juniper berries, gentian, wild cherry bark, rosin, burdock root, elecampane, ginger, Glauber's salt, areca nuts, anise, nux vomica, spikenard, wood charcoal, iron oxide, potassium carbonate, sodium carbonate, corn germ meal, tankage, kiln dried corn |
| Komo Manufacturing Company, Knightstown, Ind. Komo Hog Tonic ----- | 6178 | 3.0 | 3.0 | 6.0 | American wormseed, Glauber's salt, Jamaica ginger, bicarbonate of soda, sodium chloride, charcoal, sulphur, wood ashes, flaxseed meal |
| Komo Stock Tonic ----- | 6192 | 3.0 | 5.0 | 16.0 | Gentian, Jamaica ginger, fenugreek, elecampane, caraway seed, anise seed, fennel seed, wormseed, areca, St. John's bread, (carob beans), sodium sulphate, sulphur, flaxseed meal, corn meal, wheat middlings |
| Kutz-Bronson Medicine Company, Kirklin, Ind. ⁵³ K. & B. Stock Conditioner ----- | 3886 | 5.0 | 14.0 | 9.5 | Gentian, fenugreek, black antimony, asafetida, ginger, copperas, sanguinaria, mandrake, colombo, poplar bark, madder, sulphur, wood charcoal, potassium bitartrate, Glauber's salt, salt, linseed cake |
| K. & B. Poultry Tonic and Egg Producer---- | 4357 | 5.0 | 14.0 | 6.5 | Ginger, gentian, capsicum, fenugreek, cantharides, Venetian red, sulphur, Epsom salt, linseed oil cake, beef scraps, blood meal, bone meal |
| Lancaster, Dills Brattain & Company, Greencastle, Ind. O. D. Shover's Poultry Powder ----- | 7560 | ---- | ---- | 2.0 | Fenugreek, black antimony, Spanish brown, blood root, sulphur, salt, old process linseed oil meal |
| Shover's Stock Food ----- | 8307 | ---- | ---- | 2.0 | Fenugreek, black antimony, Spanish brown, blood root, sulphur, salt, linseed oil meal |
| Lee Company, Geo. H., Omaha, Neb. Lee's Best Conditioner ----- | 4526 | 2.0 | 25.0 | 10.0 | Gentian, ginger, fenugreek, sulphur, anise, licorice, rhubarb, cayenne, potassium nitrate, (salt petre) iron sulphate (copperas) charcoal, salt, corn germ meal, linseed meal |
| Lees Egg Maker ----- | 5258 | 2.0 | 30.0 | 5.0 | Potassium nitrate, sodium sulphate, ginger, gentian, fenugreek, iron sulphate, cayenne, salt, sulphur, charcoal, granulated blood, linseed meal |
| LeGear Medicine Company, Dr. L. D., St. Louis, Mo. Dr. LeGear's Poultry Powder ----- | 8135 | 3.0 | 4.0 | 50.0 | Ginger, charcoal, salt, capsicum, iron sulphate, ground oyster shell, (palm meal) composed of ground wheat middlings, ground peanut hulls and palm oil |
| Dr. LeGear's Stock Powders ----- | 8136 | 3.0 | 4.0 | 50.0 | Charcoal, salt, sodium nitrate, fennel seed, ginger, sodium bicarbonate, iron sulphate, quassia, nux vomica, (palm meal), composed of ground wheat middlings, ground peanut hulls and palm oil |
| Ludwig Remedy Company, St. Louis, Mo. Appe Tona Medicated Stock Conditioner----- | 7606 | 3.5 | 10.4 | 9.0 | Nux vomica, gentian, anise, fenugreek, potassium nitrate, copperas, sulphur, charcoal, salt, alfalfa meal, cottonseed meal |
| Appe-Tona Poultry Conditioner ----- | 7607 | 6.0 | 16.7 | 14.0 | Nux vomica, capsicum, potassium nitrate, copperas, calcium hydrate, sulphur, charcoal, salt, alfalfa, cottonseed meal |
| Maple City Stock Food Company, Laporte, Ind. Maple City Poultry Food & Conditioner---- | 3207 | 3.3 | 17.5 | 9.2 | Carbonate of iron, anise seed, African ginger, mustard, salt, sulphur, licorice root, willow charcoal, ashes, alfalfa meal, meat meal |

⁵³ Succeeded by K. & B. Medicine Co.

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Maple City Stock Food Company, Laporte, Ind. Maple City Stock Food & Conditioner----- | 4705 | 1.0 | 6.0 | 4.0 | Potassium nitrate, sulphur, apocynum, anise seed, licorice root, yellow poplar bark, rosin, charcoal, red pepper, hyposulphite of soda, Armenian bole, quaking asp bark, salt, linseed meal, alfalfa meal, wheat middlings | |
| Moorman Manufacturing Company, Quincy, Ill. Moorman's Concentrated Horse Powder----- | 5958 | 6.6 | 12.6 | 5.8 | Ginger, fenugreek, copperas, areca nut, sulphur, black antimony, sulphate of soda, salt, linseed meal, siftings from corn cereal foods | |
| Moorman's Special Cattle Powder ----- | 5959 | 8.2 | 18.3 | 7.5 | Ginger, gentian, fenugreek, tamarac bark, sulphur, charcoal, salt, linseed meal, siftings from corn cereal foods | |
| McCrillus Medical Company, Muncie, Ind. McCrillus' Stock Powders ----- | 5988 | ---- | ---- | 2.0 | Gentian, fenugreek, American wormseed, podophyllin, sanguinaria, bicarbonate of soda, sulphate of iron, sulphur, charcoal, Glauber's salt, nux vomica | |
| McCrillus' Poultry Tonic ----- | 5989 | ---- | ---- | 2.0 | Gentian, African ginger, African capsicum, sanguinaria, podophyllin, bicarbonate of soda, sulphate of iron, sulphur, Glauber's salt, nux vomica, bone meal, charcoal | |
| National Manufacturing Company, Flora, Ind. National Stock Tonic ----- | 8879 | 0.2 | 1.5 | 3.0 | Epsom salt, sulphate of iron, bicarbonate of soda, lime, (calcium oxide), salt, corn germ meal | |
| Old Kentucky Manufacturing Company, Paducah, Ky. B. A. Thomas' Improved Stock Remedy----- | 6160 | ---- | 0.5 | 6.0 | Magnesium sulphate, ferrous sulphate, calcium hydrate, sodium chloride, sulphur, pulvis ligni, (charcoal), cob meal | |
| B. A. Thomas' Improved Poultry Remedy---- | 6161 | ---- | ---- | ---- | Magnesium sulphate, ferrous sulphate, calcium hydrate, sodium chloride, pulvis os, (bone meal), shell meal | |
| Pratt Food Company, Philadelphia, Pa. Pratts Poultry Regulator ----- | 4492 | 3.0 | 8.0 | 23.0 | Red peruvian bark, gentian, ginger, sassafras bark, fenugreek, cayenne, caraway, sulphur, sub carbonate of iron, oxide of iron, shell meal, ground grain screenings | |
| Pratts Baby Chick Food ----- | 4494 | 2.5 | 12.0 | 2.0 | Gentian, ginger, pepper, caraway, Epsom salt, rape, hulled oats, corn meal, wheat middlings, cooked wheat, millet, bone meal, shell meal | |
| Pratts Calf Tonic ----- | 6025 | 1.0 | 1.0 | 10.0 | Gentian, ginger, fenugreek, asafetida, nux vomica, oxide of iron, salt, corn meal | |
| Pratts Cow Tonic ----- | 6345 | 1.0 | 1.0 | 10.0 | Gentian root, ginger root, fenugreek, nux vomica, cascarrilla, cinchona, oxide of iron, charcoal, salt, ground grain screenings | |
| Pratts Animal Regulator ----- | 8171 | 1.0 | 1.0 | 25.0 | Gentian root, quassia, ginger, fenugreek, fennel seed, nux vomica, Epsom salt, Glauber's salt, sulphate of iron, salt, charcoal, palmo meal, (peanut meats, peanut shells, palm oil) | |
| Pratts Conditioner for Horses and Cattle---- | 8172 | 1.0 | 1.0 | 25.0 | Gentian, quassia, ginger, fenugreek, fennel seed, nux vomica, Epsom salt, Glauber's salt, sulphate of iron, salt, charcoal, palmo meal, (peanut meats, peanut shells, palm oil) | |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Prussian Remedy Company, St. Paul, Minn. Prussian Stock Tonic ----- | 1713 | 3.0 | 10.0 | 12.0 | | Gentian, anise seed, fenugreek, sulphur, sodium chloride, elecampane, ginger, asafetida, charcoal, ferrous sulphate, sodium sulphate, sassafras, licorice root, capsicum, chenopodium, curcuma, wheat shorts, rye shorts, ground flaxseed screenings |
| Prussian Poultry Tonic ----- | 1977 | 1.0 | 5.0 | 20.0 | | Gentian, anise seed, fenugreek, sulphur, elecampane, ginger, asafetida, charcoal, sodium sulphate, sassafras, licorice root, capsicum, chenopodium, curcuma, bone meal, oyster shells, sodium chloride, copperas, rye shorts, wheat shorts, ground flaxseed screenings |
| Prussian Horse Tonic ----- | 4706 | 3.5 | 11.0 | 8.0 | | Gentian, ginger, fenugreek, elecampane, anise seed, sassafras, licorice root, chenopodium, curcuma, asafetida, capsicum, sulphur, charcoal, sodium sulphate, sodium chloride, iron sulphate, rye shorts, wheat shorts, ground flaxseed screenings |
| Pure Drug Company, Bloomingsdale, Ind. Pure Drug Poultry Remedy & Egg Producer "The" Pure Drug Treatment for Horses, Cattle, Sheep & Hogs ----- | 3252 | 2.0 | 12.0 | 10.0 | | Venetian red, capsicum, oyster shell, wheat middlings, linseed meal |
| Ragon Stock Food Company, D. S., Evansville, Ind. Farmers Stock Food ----- | 3626 | 1.5 | 5.5 | 5.0 | | Iron carbonate, fenugreek, salt, wheat middlings |
| Farmers Poultry Food ----- | 261 | 4.8 | 13.5 | 6.7 | | Charcoal, gentian, ginger, capsicum, sassafras, puccoon root, poplar bark, sodium chloride, wheat middlings |
| Rawleigh Company, The W. T., Freeport, Ill. Rawleighs Poultry Powder ----- | 262 | 5.6 | 16.3 | 8.0 | | Gentian, ginger, copperas, charcoal, sassafras, capsicum, bone, wheat product |
| Rawleighs Stock Tonic ----- | 6995 | 9.2 | 16.1 | 27.6 | | Ginger, fenugreek, quassia, capsicum, copperas, sulphur, charcoal, oyster shells, ground bone, tankage, wheat middlings |
| Redding, J. H., Hobart, Ind. J. H. Redding's Hog & Chicken Cholera Medicine ----- | 6996 | 6.6 | 10.8 | 10.6 | | Fenugreek, gentian, ginger, capsicum, quassia, anise seed, sulphur, charcoal, sodium chloride, sodium phosphate, ferrous sulphate, wormseed, wheat middlings |
| Republic Stock Food & Medical Company, Decatur, Ind. Republic Stock Food ----- | 7843 | 1.5 | 0.3 | 3.0 | | Spanish brown, sulphur, wood ashes, sodium bicarbonate, black antimony, capsicum, copperas, Glaubers salt, salt petre, arsenic, linseed oil meal, raw linseed oil, charcoal, rosin, alum |
| Roberts Veterinary Company, Dr. David, Waukesha, Wis. Dr. David Roberts Hog Tonic ----- | 5100 | 3.5 | 10.0 | 7.0 | | Fenugreek, elecampane, gentian, salt, ashes, sugar, ground flaxseed meal, wheat middlings |
| Dr. David Roberts Poultry Tonic ----- | 6216 | 2.5 | 10.0 | 10.0 | | Anise, fenugreek, gentian, licorice, nitrate of potash, (salt petre), sulphate of iron, (copperas), charcoal, corn starch, corn meal |
| Rust & Sons, Wm., New Brunswick, N. J. Rust's Tri-Plex Stock Food ----- | 6217 | 5.5 | 31.0 | 7.6 | | Gentian, ginger, fenugreek, sassafras, licorice, anise, capsicum, sulphur, sulphate of iron, (copperas) nitrate of potash, (salt petre), salt, blood meal, bone meal, cottonseed meal, linseed meal, corn starch, corn meal |
| | 4975 | 2.0 | 13.0 | 2.8 | | Fenugreek, cinchona, gentian, caraway, sulphur, sodium bicarbonate, sodium chloride, wheat middlings |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | |
| Rust & Sons, Wm., New Brunswick, N. J. Rust's Havens Climax Powder ----- | 5013 | 2.0 | 5.0 | 25.0 | Red cinchona, quassia, capsicum, fenel, gentian, sodium bicarbonate, sulphur, linseed meal |
| Rust's Egg Producer ----- | 5014 | 1.0 | 10.0 | 15.0 | Capsicum, quassia, sulphur, iron sulphate, sodium bicarbonate, charcoal, bone, shells, flaxseed |
| Security Remedy Company, Minneapolis, Minn. Security Calf Food Compound ----- | 5973 | 4.5 | 9.8 | 6.0 | Locust bean meal, fenugreek, anise, ginger, oxide of iron, sulphate of iron, salt, corn starch, wheat flour, wheat middlings, powdered milk, sugar |
| Seneca Company, Inc., The, Tiffin, Ohio Seneca Hog Remedy ----- | 5528 | ---- | ---- | 10.0 | Fenugreek, Spanish brown, copperas, sulphur, soda bicarbonate, Epsom salt, salt petre, charcoal, cinders, linseed oil meal |
| Shores-Mueller Company, Cedar Rapids, Iowa Shores Hog Powder ----- | 4886 | 6.6 | 14.3 | 14.1 | Gentian root, anise seed, fenugreek seed, sassafras bark, quassia, magnesium sulphate, charcoal, potassium nitrate, sulphur, sodium chloride, dried blood, ground flax, wheat screenings |
| Shores Stock Regulator ----- | 4887 | 7.2 | 9.7 | 13.8 | Gentian root, ginger root, licorice root, fenugreek seed, anise seed, wormseed, coriander seed, sassafras bark, quassia, capsicum, magnesium sulphate, charcoal, potassium nitrate, sulphur, sulphate of iron, sodium chloride, ground flax, wheat screenings |
| Shores Stock Tonic ----- | 4888 | 7.0 | 9.5 | 11.5 | Gentian root, ginger root, licorice root, fenugreek seed, anise seed, quassia, capsicum, magnesium sulphate, charcoal, sulphate of iron, sulphur, sodium chloride, ground flax, wheat screenings |
| Shores Poultry Powder ----- | 4889 | 3.6 | 12.3 | 12.5 | Gentian root, fenugreek seed, nux vomica, capsicum, sulphate of iron, iron oxide, sulphur, sodium carbonate, charcoal, sodium chloride, dried blood, shells, ground flax, wheat screenings |
| Shrader Drug Company, Iowa City, Iowa Eureka Stock Food ----- | 756 | 6.7 | 30.2 | 9.5 | Anise, blood root, fenugreek, gentian, ginger, licorice, linseed meal, salt, charcoal |
| Eureka Poultry Food ----- | 1262 | 5.0 | 17.6 | 6.1 | Bone meal, gentian, fenugreek, blood root, capsicum, wheat middlings, buckwheat middlings, carbonate of iron |
| Snoddy Remedy Company, The Dr. J. H., Alton, Ill. The Snoddy Remedy ----- | 6296 | 0.5 | 11.6 | 8.3 | Sulphur, copper sulphate, arsenic trioxide, charcoal, phytolacca, (poke root), sodium sulphate, ammonium chloride, mandrake, wheat middlings |
| Soudan Specialty Mfg. Co., Milwaukee, Wis. Soudan Blood Toner ----- | 6199 | 5.0 | 17.0 | 6.0 | Gentian, ginger, fenugreek, anise seed, elecampane, elm bark, sodium bicarbonate, charcoal, salt, wheat middlings, ground flax screenings |
| Souder Company, The, Kokomo, Ind. Souder's Stock Conditioner and Fat Producer ----- | 3204 | 10.9 | 14.5 | 7.9 | Sulphur, black antimony, fenugreek, salt petre, asafetida, rosin, cream of tartar, Glauber's salt, gentian, flaxseed, oil cake |
| Stahl, L. N., Geneva, R. R. 5, Ind. Poultry Remedy ----- | 5885 | 1.0 | 4.0 | 5.0 | Sulphur, bicarbonate of soda, Jamaica ginger, wheat middlings, linseed oil meal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|--|--|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Standard Chemical Manufacturing Company, Omaha, Neb. Standard Stock Food | 5172 | ---- | ---- | 15.0 | | Caraway seed, anise seed, coriander seed, fenugreek seed, capsicum, gentian root, yellow dock root, ginger root, licorice root, sulphur, bicarbonate of soda, salt, charcoal, ground wheat screenings |
| Standard Poultry Tonic | 7587 | ---- | ---- | 18.0 | | Ginger root, capsicum, gentian root, charcoal, salt, bone meal, dried blood, alfalfa meal, peanut meats, peanut hulls |
| St. Clair Live Stock Remedy Company, East St. Louis, Ill. Clarina Sheep Tonic & Worm Expeller..... | 9366 | ---- | ---- | 29.0 | | Sulphate of iron, areca nut, pumpkin seed, lobelia, American wormseed, gentian, ginger, licorice, bicarbonate of soda, charcoal, American flower of sulphur, sassafras, sodium chloride, ground delinted cottonseed hulls |
| Clarina Horse & Mule Tonic & Worm Expeller | 9367 | ---- | ---- | 26.0 | | Sulphate of iron, areca nut, pumpkin seed, lobelia, American wormseed, gentian, ginger, licorice, bicarbonate of soda, charcoal, American flower of sulphur, sassafras, sodium chloride, ground delinted cottonseed hulls |
| Clarina Hog Tonic & Worm Expeller..... | 9368 | ---- | ---- | 25.0 | | Sulphate of iron, areca nut, pumpkin seed, lobelia, American wormseed, gentian, ginger, licorice, bicarbonate of soda, charcoal, flower of sulphur, sassafras, sodium chloride, sulphate of copper, ground delinted cottonseed hulls |
| Clarina Poultry Tonic | 9369 | ---- | ---- | 14.0 | | Sulphate of iron, gentian, ginger, capsicum, sodium bicarbonate, charcoal, sassafras, potassium nitrate, hydrate of lime, ground delinted cottonseed hulls |
| Clarina Cattle Tonic & Worm Expeller..... | 9370 | ---- | ---- | 27.0 | | Sulphate of iron, areca nut, pumpkin seed, lobelia, American wormseed, gentian, ginger, licorice, bicarbonate of soda, charcoal, sassafras, sodium chloride, ground delinted cottonseed hulls |
| Stevens Stock Food Company, Wabash, Ind. Stevens Stock Food | 1000 | 3.0 | 12.0 | ---- | | Gentian, sassafras bark, buchu leaves, nitrate of potash, sodium chloride, willow charcoal, fenugreek, wheat middlings |
| Stock Food Company of America, Minneapolis, Minn. Clover Brand Poultry Tonic | 4489 | ---- | ---- | ---- | | Gentian, capsicum, ginger, charcoal, copperas, anise, bone meal, oyster shells, alfalfa meal |
| Union Stock Food Company, Simpsonville, Ky. Union Stock Tonic | 5232 | ---- | ---- | 18.0 | | Epsom salt, fenugreek, anise seed, sulphur, salt, charcoal, tobacco dust, ground cottonseed hulls |
| Union Poultry Tonic | 5233 | ---- | ---- | 21.0 | | Capsicum, sulphur, oxide of iron, carbonate of lime, ground oyster shells, ground rice hulls |
| United Breeders Company of America, Syracuse, N. Y. Baum's Cattle Tonic | 2059 | 1.0 | 1.0 | 10.0 | | Serpentaria, cascara sagrada, gentian, mustard seed, sulphur, magnesium sulphate, sodium bicarbonate, nitre, charcoal, sodium chloride, licorice root, ginger, capsicum, yellow dock, Colombo, linseed meal |
| Baum's Sheep Tonic | 3448 | 1.0 | 1.0 | 10.0 | | Gentian, zedoary, galega, sulphate of magnesium, wormseed, sage, bicarbonate of soda, sulphur, chloride of sodium, ginger, capsicum, mustard seed, charcoal, linseed meal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|---|--------------|---|---------------------------------------|-------------------------------------|--|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| United Breeders Company, of America, Syracuse, N. Y. Baum's Poultry Tonic ----- | 4215 | 1.0 | 1.0 | 10.0 | | Ginger, cayenne pepper, anise, gentian, mustard seed, sulphur, sulphate of iron, bicarbonate of soda, carbonate of iron, Colombo, nux vomica, charcoal, linseed meal |
| Baum's Dairy Tonic ----- | 4216 | 1.0 | 1.0 | 10.0 | | Gentian, ginger, capsicum, anise, mustard seed, galega, pipsissewa, stillingia, licorice root, yellow dock, nitre, sulphate of magnesia, bicarbonate of soda, sulphate of iron, sulphur, charcoal, chloride of sodium, sugar, linseed meal |
| Baum's Horse Tonic ----- | 4217 | 1.0 | 1.0 | 10.0 | | Ginger, gentian, capsicum, anise, mustard seed, wormseed, spigelia, elecampane, nux vomica, cascara sagrada, licorice root, sulphate of magnesia, sulphate of iron, carbonate of iron, bicarbonate of soda, chloride of sodium, nitre, charcoal, sugar, linseed meal |
| Baum's Hog Tonic ----- | 4218 | 1.0 | 1.0 | 10.0 | | Gentian, ginger, mustard seed, anise, berberis aquifolium, spigelia, wormseed, areca, hyposulphite of soda, bicarbonate of soda, chloride of sodium, sulphate of magnesia, sulphur, nitre, charcoal, sugar, linseed meal |
| United States Food Company, The, Pleasant City, Ohio U. S. Stock Food Tonic ----- | 7493 | ---- | ---- | 12.0 | | Gentian root, blood root, Epsom salt, ginger, sulphur, poplar bark, licorice root, charcoal, fenugreek, salt, copperas, quassia, flax screenings |
| U. S. Poultry Food Tonic ----- | 8890 | ---- | ---- | 16.0 | | Ginger, sulphur, Epsom salt, Venetian red, quassia, fenugreek, salt, copperas, ground flax screenings |
| U. S. Animal Regulator ----- | 8891 | ---- | ---- | 12.0 | | Ginger, quassia, copperas, Epsom salt, sulphur, American wormseed, charcoal, fenugreek, salt, ground flax screenings |
| Universal Products Company, Fairmount, W. Va. Uproco Poultry Tonic ----- | 7698 | ---- | 3.5 | 3.0 | | Mustard, (sinapis alba), capsicum, Venetian red, sulphate of iron, calcium carbonate, sodium chloride, oyster shells, wheat bran, wheat middlings |
| Uproco Horse & Cattle Powders ----- | 7699 | ---- | 3.5 | 3.0 | | Sodium chloride, nux vomica, rosin, sulphur, ginger, copperas, fenugreek, digitalis, senna, charcoal, wheat bran, wheat middlings |
| Watkins Medical Company, The J. R., Winona, Minn. Watkins Stock Tonic ----- | 5898 | 3.0 | 10.0 | 9.0 | | Anise seed, areca nuts, cascara sagrada, charcoal, capsicum, coriander seed, elecampane root, fenugreek seed, gentian root, ginger root, juniper berries, mandrake root, wormseed, pumpkin seed, sulphate of iron, sodium chloride, sodium bicarbonate, American sulphur, salts of tartar, linseed meal, standard wheat middlings |
| Watkins Poultry Tonic ----- | 5036 | 2.5 | 7.0 | 6.0 | | Venetian red, American sulphur, African ginger, Spanish flies, gentian root, capsicum, ground shells, standard wheat middlings |
| Waukarusha Stock Food Company, The Lewis, Lee, Ind. Waukarusha Stock Food ----- | 1090 | 5.5 | 32.0 | 11.0 | | Sulphur, resin, sulphate of iron, salt petre, oil meal |

Brands Certified by Manufacturers as Being on Sale, May 1, 1918 (continued)

| LABEL | Official No. | Guaranteed by the manufacturer to contain | | | | and to be composed of the following ingredients |
|--|--------------|---|---------------------------------------|-------------------------------------|---|---|
| | | Not less than per cent. crude fat | Not less than per cent. crude protein | Not more than per cent. crude fiber | | |
| Whelan, Omer G., Richmond, Ind. Whelan's Chop Feed ----- | 7933 | 4.0 | 12.0 | 10.0 | Gentian, ginger, fenugreek, cascarrilla, elecampane, blood root, golden seal, bitter sweet, caraway, dandelion, mandrake, salt, charcoal, quassia, copperas, Venetian red, ground grain screenings, corn, oats, corn feed meal, corn bran, wheat bran, wheat middlings, ground wheat screenings, linseed meal, cotton seed meal, corn gluten feed, corn germ meal | |
| Wilbur Stock Food Company, Milwaukee, Wis. Wilbur's Stock Tonic ----- | 5691 | 3.0 | 17.0 | 6.0 | Fenugreek, gentian, ginger, anise seed, elecampane, blood root, elm bark, quassia, soda, charcoal, salt, wheat middlings | |
| Wilbur's Poultry Tonic ----- | 5692 | 3.0 | 17.0 | 6.0 | Fenugreek, gentian, ginger, anise seed, elecampane, blood root, elm bark, quassia, soda, Venetian red, charcoal, salt, wheat middlings | |
| Wilbur's Hog Tonic ----- | 6619 | 2.0 | 10.0 | 10.0 | Fenugreek, gentian, ginger, anise seed, elecampane, blood root, elm bark, quassia, bicarbonate of soda, charcoal, salt, wheat middlings, ground flax screenings | |

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PURDUE UNIVERSITY

Agricultural Experiment Station

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COMMERCIAL FEEDING STUFFS

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² Connected with Fertilizer and Feeding Stuff Control

COMMERCIAL FEEDING STUFFS

E. G. PROULX

C. CUTLER¹ R. B. DEEMER² J. H. ROOP H. J. NIMITZ O. S. ROBERTS

The enactment of the Indiana Feeding Stuffs Control law by the legislature of 1907 and amended in 1909 was due largely to the efforts of the farmers' organizations and feeders of the State.

The demand for the enactment of such a law was the result of the knowledge of many feeders that Indiana was the dumping ground for inferior feeds sold under misleading names, that could not be sold in states having feeding stuffs laws, and that the sale of flaxseed screenings meal for linseed meal, cottonseed feed for cottonseed meal, ground oat hulls for ground oats, feeds containing ground corn cobs for pure mill by-products and similar practices, were common.

The law has been in active force for 11 years, and if expressions of opinions received from purchasers of feed, manufacturers, agents and dealers are representative, it is satisfactorily serving the purpose for which it was enacted.

The fear expressed by many manufacturers and dealers that the enforcement of the law would prove a serious handicap to the trade has not been realized, since the sales have shown a substantial growth each year. A large part of this increase can justly be attributed to the fact that Indiana purchasers of feeds have reasonable assurance that they will secure the feed they purchase and not an inferior or adulterated article.

OBJECTS OF THE LAW

The Indiana Feeding Stuffs Control law is entrusted to the State Chemist for enforcement and the objects of the law briefly stated, are registration of all brands of commercial feeds under names which are descriptive and not misleading to the consumer, securing and affixing State Chemist's labels to each and every package and delivering to agents and consumers feeding stuffs which correspond to the attached State Chemist's label.

The State Chemist will gladly furnish upon request a copy of the Indiana Feeding Stuffs Control law, together with full information regarding compliance with this law.

MANUFACTURERS

The provisions of the law, together with the manner of its enforcement, seem to be very well understood by the manufacturers and need not be again published in this bulletin. New manufacturers selling feed in Indiana should communicate with the State Chemist and receive a copy of the law, together with all necessary information concerning it.

¹ Resigned December 1, 1917

² Resigned February 1, 1918

This information is contained in Purdue University Agricultural Experiment Station Circular No. 75 entitled "The Feeding Stuff Control Law and How to Comply With It." Copies of this publication will be furnished without cost upon request.

AGENTS, DEALERS, DISTRIBUTERS

THE LAW.—Before offering or exposing for sale, selling or distributing feed in Indiana, secure a copy of the law and rulings and carefully study its provisions and requirements.

COMPANIES.—Before accepting the agency for any company, consult the reports of the State Chemist and contract to represent only companies whose records from year to year show compliance with the law.

Persons or firms who continue to represent and purchase from companies with poor records of inspection, should bear in mind that the person offering or exposing for sale, selling or distributing the feed in Indiana is directly responsible for feed so exposed, sold or distributed. Failure to meet the requirements of the law and repeated sales as above, will leave the State Chemist no option but to file information with the prosecuting attorney.

LABELS.—A reproduction of the official label, which is the only label that can legally be used in the sale or distribution of feeds in Indiana, and which must be secured from the State Chemist, will be found on page 6. Do not accept, offer or expose for sale, sell, deliver or distribute any package or any quantity of commercial feeding stuffs which does not have attached or which is not accompanied by a legal label for each 100 pounds or fraction. Dealers cannot shift the responsibility for selling unlabeled feed to the manufacturer if unlabeled shipments are accepted.

FRACTIONAL SALES.—The sale of small amounts from original labeled packages has been held by the Attorney General to be contrary to law and all sales whether of 1, 2, 5, 15, 25, 50, 75 or 100 pounds must be accompanied by a State Chemist's label. The special attention of agents and dealers selling condimental feeds, tonics, conditioners, etc., and chicken feeds is called to this ruling.

SHIPMENTS WITHOUT LEGAL LABELS ATTACHED.—In most shipments there can be no valid reason for shipment without labels. In cases where shipments are made without labels attached, the latter being forwarded separately by mail or express, the same should be attached to sacks before offered for sale.

CONTRACTS.—In contracting for feeds, do not make purchases on the basis of private labels or advertising matter. Ascertain that the feed offered is properly registered, by examination of the State Chemist's reports, or by requiring the manufacturer or his agent to show official label, (see reproduction, page 6). Examine the record of inspection of said brand. Contract on the basis of the official guarantee and insert registration number, which always appears at the top of the official label in the contract. Examine labels attached to packages or accompanying bulk shipments on arrival and if not according to contract, refuse shipment until satisfactory explanation is furnished for the variation. Notify the State Chemist promptly of all facts in the case.

If in doubt or in need of additional information write to the State Chemist, who is always ready to serve you.

WEIGHTS.—If short weight shipments are suspected, weigh not less than 20 packages selected at random, on a scale previously balanced and tested, and if an average shortage of one pound or more per 100 pounds is found do not remove balance of shipment from car, but notify the State Chemist by telephone or telegraph, so that an inspector may be sent to make an official inspection.

SAMPLES.—Since the only samples analyzed are those obtained by the official inspectors from feeds and fertilizers offered or exposed for sale, sold or distributed in the open markets of the State, no samples of any kind should be forwarded to the State Chemist. In case an inspection is desired, cooperate by observing procedure under "Samples, Inspection," page 6.

DEFICIENCIES AND ADULTERATION.—Examine carefully the mailed report of inspection of every sample secured from feed in your possession, and if the report for any sample shows it deficient or adulterated sufficiently to carry with it the advice that the shipment should be withdrawn from sale, do so promptly and report the amount and date of withdrawal to the State Chemist. (see "Remarks") Some cases have occurred where dealers have neglected to accept such advice. While there may be good grounds for claiming that the average agent or dealer has not the necessary equipment to determine whether guarantees are maintained until an inspection report is received, after such a report has been made showing that a shipment does not meet the requirements of the law, there can be no valid excuse for his continuing its sale, and in all such cases, prompt complaint will be filed with the prosecutor by the State Chemist.

CONSUMERS

BULLETINS.—The reports of the State Chemist's Department contain not only the results of inspection, but incorporate a table showing feeds which manufacturers certify will be on sale the ensuing year, together with other tables showing the complete analyses of classes of feeding stuffs collected and coefficients of digestion available for feeds inspected. The following statements are offered with a view to assisting consumers, agents and dealers in using these reports to the best advantage:

Determine the character of the feed you wish to purchase.

Consult Purdue University Agricultural Experiment Station Bulletin No. 216, "Commercial Feeds Registered for Sale in Indiana, May 1, 1918" to ascertain manufacturers who have feed of the desired composition and materials registered for sale.

Consult Table IV and compare the inspection records of the manufacturers of the particular feed or feeds selected as well as general record for maintaining guarantees.

Consult Table I for digestion coefficients.

Consult "Refunds," page 20.

Purchase feeds from manufacturers whose records show compliance with the law.

Make contracts and purchases on the basis of official guarantees and not from private labels or advertising matter.

If in doubt or in need of additional information write to the State Chemist.

LABELS.—The only guarantee recognized as legal in Indiana is that on the State Chemist's label (see reproduction, page 6), which must be

attached to each package for each 100 pounds or fraction of feed contained therein and which must accompany similar quantities delivered in bulk. Refuse to accept any shipments unless official labels bearing the same guarantee as contracted for, are furnished.

If feed is purchased which does not meet the requirements of the law or contract, notify the State Chemist by telegraph or telephone giving location of shipment, name of the feed, the manufacturer and amount.

CLUBS, ASSOCIATIONS, ETC.—Do not accept, deliver or distribute any feeding stuff without State Chemist's labels. The person or persons to whom shipments of feed are consigned are responsible for such shipments meeting all the requirements of the law.

SAMPLES, INSPECTION.—When an inspection is desired, do not forward a sample but observe and follow the request and directions given under "Samples," page 7, and "Requests for Inspection," page 8.

FREIGHT BILLS, INVOICES, ETC.—In order that records essential to the inspection may be available for the inspectors, save all invoices, freight bills and letters relating to feed purchased.

THE STATE CHEMIST'S LABEL

The official label, required by law, a reproduction of which follows, is always printed, contains the information necessary, and the fac-simile signature of the State Chemist.

| |
|--|
| <p style="text-align: center;">○</p> <p>\$50 fine for using this tag second time</p> <p style="text-align: center;">No. 9</p> <p style="text-align: center;">Net Weight 100 Pounds</p> <p style="text-align: center;">JOHN DOE & CO., of LaFayette, Ind., Guarantee this DOE'S MIXED FEED to contain not less than 3.5 per cent. of crude fat, 14.0 per cent. of crude protein, not more than 10.0 per cent. of crude fiber, and to be compounded from the following ingredients: Wheat Bran, Middlings, Ground Wheat Screenings and Corn Bran</p> <hr/> <p style="text-align: center;"><i>E. & Prouty</i></p> <p style="text-align: center;">Acting State Chemist, Purdue University Agricultural Experiment Station LaFayette, Ind.</p> <p>Not good for more than 100 pounds.</p> |
|--|

Agents and consumers should bear in mind that the accepted guarantee does not necessarily imply quality, and that it is simply intended as a guide to the purchaser. Inferior goods may be legally sold

if correctly guaranteed. Close attention should be given to the ingredients contained in the feed, which must be printed on the labels.

Distinction should be made between the private tag or label of the manufacturer, broker or agent and the State Chemist's label; the former is optional, *the latter necessary*. There can be no objection to the manufacturers' use of private labels so long as the printed matter on same conforms to the official State Chemist's label. False and misleading statements on the private labels attached, leaves the State Chemist no option but to advise withdrawal from sale of all such wrongly labeled feed, and the violation will be taken up under the Federal Food and Drugs Act.

ADMINISTRATION

It is provided by the Feeding Stuffs Control law that it shall be enforced by the State Chemist, who is directly responsible to the authorities of the Purdue University Agricultural Experiment Station.

The State Chemist is assisted in carrying out the provisions of the law by regularly appointed deputies and inspectors who are especially trained for the work. The inspectors are on the road every working day, collecting samples of feeds and fertilizers, which are sent to the laboratory where they are analyzed by the deputies.

INSPECTIONS.—It is impossible to inspect every lot of feed distributed in Indiana, but it is the aim of the Department as far as possible to make two inspections of each brand offered for sale. In cases where manufacturers of brands have poor records of inspection, duplicate samples are secured wherever shipments are found.

All reasonable requests for inspection are given prompt attention.

Agents, dealers and consumers are advised and requested to cooperate with the State Chemist by giving prompt notice of the receipt of interstate or other shipments, especially the former.

SAMPLES.—Manufacturers, agents, dealers and consumers are requested *not to forward* samples of feeds, fertilizers or other materials to this department since to do so is a useless expense *as the only samples analyzed are those secured by the official inspectors from feeding stuffs or fertilizers found in the open markets of the State*.

If an analysis for the purpose of making guarantee is necessary, it must be secured from a commercial chemist.

The rule that only samples secured by the inspectors of the Department will be analyzed must be rigidly adhered to for the following reasons:

1. In order for the analysis of a sample of feed to be of value, the sample must be drawn in such a manner as to be representative of the entire shipment. Such a representative sample cannot be secured by taking a portion from one bag or a handful from the top of a number of bags but must be taken with a sampler, which will take a portion the entire length of the bag or container.

2. Unless it can be shown beyond doubt that the sample was drawn by one especially trained for the purpose and in such a way as to be representative of the shipment, successful prosecution of the person or firm making the sale, should the sample fail to equal guarantee or be adulterated, is impossible.

3. The only funds available for the work of inspection are the fees derived from the sale of labels and this amount is not sufficient nor is the

staff available to permit of the analysis of miscellaneous samples of feeding stuffs or more extensive duplication of samples of the same brand. The inspection in this state is more general and covers more territory than in most states having similar laws, and comparison between inspection reports, we think, justifies the belief that on the basis of tonnage sold, we are analyzing as many if not more inspection samples than other states. In 1917 an inspection sample was secured for each 82 tons of feed sold.

REQUESTS FOR INSPECTION.—If an inspection is desired write to the State Chemist, *to whom all communications regarding the work of the Department should be addressed*, stating the amount of feed on hand, name of feed and official number at top of label with any special reason for desiring the inspection. In case the amount present is sufficient to justify it and a large number of samples of the same brand have not already been inspected, an inspector will be sent to secure an official sample without expense to those desiring the inspection.

FEEDING STUFFS IN QUANTITY.—Purchasers should have available for the inspector the following information: the total number of tons in shipment; number and initials of car in which shipment is received; number and date of waybill; name of railroad issuing waybill; name of town from which shipment was made; name of firm from which feed was purchased; date received and price per ton. *This information is especially important when feed is purchased direct from manufacturers in other states.*

ANALYSES.—Laboratory numbers for identification of the samples are assigned upon their receipt at the laboratory. The analysts are not in possession of facts as to brand, manufacturer or origin of samples. If samples are found to be deficient in crude fat or crude protein or to contain an excess of crude fiber, at least two analysts make independent determinations on separate portions of the samples, and in case of disagreement, these results are checked from a third portion of the sample by another chemist.

All samples received from the inspectors are examined microscopically and the majority chemically and the results published, unless error in connection with the taking of the same by an employee of the State Chemist's Department can be shown.

REPORTS.—The results of the chemical and microscopical examination of samples are reported to the manufacturer, agent and persons from whom samples are obtained. *In the case of appreciably deficient or of adulterated samples the manufacturer is given 10 days' advance notice in which to file objections and review the work for which purpose a portion of the official sample is furnished if requested.* Pending adjustment of such cases and as soon as the adulteration or deficiency is detected, the agent or person offering the feeding stuff for sale is notified that it is not labeled in accordance with the requirements of the law and is advised to remove it from sale. Agents or persons so notified should respond promptly to such advice as failure to accept it will necessitate their being reported for wilful violation of the law.

No report will be made on samples secured from unlabeled shipments but results obtained will be published in the annual commercial feeding stuffs bulletin.

ANALYTICAL METHODS.—The methods of the Association of Official Agricultural Chemists are official in the State Chemist's Department.

MANUFACTURERS' CLAIMS will be given every consideration and every effort will be made to secure concordant results but *samples will not be referred for final settlement and only results which can be duplicated in the State Chemist's laboratory will be accepted as official.*

WEIGHING OF PACKAGES.—The inspection will also include the weighing of packages of feed offered for sale, to prevent the practice of giving short weights which has been prevalent in some states.

OFFICIAL DUTIES.—The official duties of the State Chemist are restricted to the inspection of fertilizers and feeding stuffs and the settlement of disputes between coal oil dealers and inspectors. The official work required takes the entire time of the staff of the Department and *no miscellaneous work* either *gratis* or *for pay* can be undertaken. *Analyses of fertilizers and feeding stuffs must be restricted to samples secured by our regular inspectors.* Analyses of water, soils, rocks or similar materials are not made by this department.

EXPLANATION OF TERMS

Concentrated feeding stuffs as defined by the Indiana Feeding Stuffs Control law is a term used to distinguish between feeding stuffs composed of grains, seeds or their by-products, and compounded feeds from such products as hay, straw or corn stover.

*Concentrates*¹ are feed of condensed nature, which are low in fiber and hence furnish a large amount of digestible matter.

*Roughages*¹ are the coarser feeding stuffs which are high in fiber and supply a lower percentage of digestible matter.

Nutrient is a term applied to any food constituent or group of similar food constituents that may aid in the support of animal life.

Moisture is the varying quantity of water occurring in feeding stuffs which can be driven off by heat at the temperature of boiling water.

Dry matter is the portion of feeding stuff which remains after the moisture is driven off.

Crude fat consists of the fats, oils and small amounts of waxes, resins, coloring matter and similar substances, dissolved from feeding stuffs by ether.

Crude Protein is the term applied to the nitrogenous constituents of a feeding stuff. It is obtained by multiplying the total nitrogen by 6.25.

Crude fiber is the woody portion of a feeding stuff, for the most part cellulose, and is insoluble in dilute acids and alkalis. Crude fiber when present in considerable quantities exerts a retarding influence on the digestion of nutrients present.

Crude ash, the mineral matter of plants, is the residue left after burning a feeding stuff at low redness. It consists chiefly of the phosphates, sulfates, chlorides and carbonates of sodium, potassium, calcium and magnesium.

Nitrogen free extract consists of sugars, starches, pentoses, non-nitrogenous organic acids, etc., and is determined by subtracting the sum of moisture, crude fat, crude protein, crude fiber and crude ash from 100.

Carbohydrates is the collective term applied to crude fiber and nitrogen free extract.

¹ Feeds and Feeding. Henry and Morrison

Filler is the term used to designate roughages which are often used as diluents of concentrates in the compounding of feeds. Fillers may be added as a constituent to make bulk but are often added to concentrates to reduce them to such a grade, that they may be sold at popular prices. Some of the more common fillers are cottonseed hulls, peanut hulls, oat hulls, cob meal, oat clippings, etc. The majority of fillers contain relatively small amounts of crude fat and crude protein and large amounts of crude fiber. Consumers should consider carefully before purchasing compounded feeds of high filler content as indicated by high fiber guarantees.

DIGESTIBLE NUTRIENTS IN FEEDING STUFFS

There has been a constant and growing demand by the feeders who wish to place their feeding operations on the scientific basis of balanced rations for the digestible nutrients, for example, digestible protein, carbohydrates, etc., that are to be found in the feeding stuffs on the markets of Indiana. Complying with this demand, terms used in the scientific compounding of rations together with Table I which contains a compilation of digestion coefficients are here presented.

*A balanced ration*¹ is the feed or combination of feeds furnishing the several nutrients—crude protein, carbohydrates, and fat—in such proportion and amount as will properly and without excess of any nutrients nourish a given animal for 24 hours.

Digestion coefficient is the term used to designate that portion or percentage of a nutrient that is digestible. These coefficients cannot be taken as absolute because they vary with the individual animal but being secured as the result of carefully conducted experiments, they will closely approximate the percentage of nutrients in feeding stuff available for the animal's use.

Nutritive ratio is a term used to designate the ratio between the digestible crude protein and the combined digestible carbohydrates and crude fat. The nutritive ratio of a feeding stuff is ascertained by dividing the amount of digestible carbohydrates + 2.25 × the digestible fat by the amount of digestible protein. The amount of digestible fat is multiplied by 2.25 to reduce it to the same energy basis as the carbohydrates, it being 2.25 times more valuable for the production of energy.

Example.—To determine the nutritive ratio of the average wheat bran containing 2.6 per cent. digestible fat; 12.2 per cent. digestible protein and 38.9 per cent. digestible carbohydrates.

$$2.6 \text{ fat} \times 2.25 = 5.85 \text{ energy value of fat in terms of carbohydrates}$$

$$5.85 + 38.9 = 44.75 \text{ energy value of fat and carbohydrates}$$

$$44.75 \div 12.2 = 3.67$$

$$1:3.67 = \text{nutritive ratio of the wheat bran}$$

¹ Feeds and Feeding. Henry and Morrison

TABLE I.—Average Digestion Coefficients of Feeding Stuffs ¹

| Feeding stuffs | Per cent. | | | |
|--|---------------|-----------|-------------|-----------------------|
| | Crude protein | Crude fat | Crude fiber | Nitrogen free extract |
| Grains, seeds, their parts and factory by-products----- | | | | |
| Barley ² ----- | 78 | 78 | 56 | 92 |
| Brewers' dried grains----- | 81 | 89 | 49 | 57 |
| Buckwheat ² ----- | 75 | 100 | 24 | 76 |
| Buckwheat bran ² ----- | 47 | 56 | 39 | 56 |
| Buckwheat middlings----- | 85 | 89 | 17 | 83 |
| Cocoonut meal ⁹ ----- | 78 | 97 | 83 | 63 |
| Corn (Dent)----- | 76 | 86 | 58 | 93 |
| Corn meal ² ----- | 74 | 93 | 57 | 94 |
| Corn bran----- | 54 | 77 | 59 | 77 |
| Corn and cob meal----- | 52 | 84 | 45 | 88 |
| Corn cob meal----- | 17 | 50 | 65 | 60 |
| Corn germ meal ² ----- | 73 | 96 | 75 | 78 |
| Cottonseed----- | 68 | 87 | 76 | 50 |
| Cottonseed meal----- | 84 | 94 | 35 | 78 |
| Cottonseed meal and hulls (cottonseed feed) ² ----- | 51 | 86 | 46 | 55 |
| Cottonseed hulls----- | 6 | 79 | 47 | 34 |
| Cowpea meal ² ----- | 82 | 74 | 64 | 93 |
| Dried beet pulp----- | 64 | ----- | 84 | 91 |
| Distillers' dried grains (chiefly corn)----- | 73 | 95 | 95 | 81 |
| Distillers' dried grains (chiefly rye)----- | 59 | 84 | ----- | 67 |
| Emmer ² ----- | 80 | 88 | 64 | 89 |
| Flaxseed----- | 91 | 86 | 61 | 55 |
| Flax plant by-product (pods, shives, seeds) ³ ----- | 63.4 | 74.9 | 48.3 | 43.3 |
| Flax shives ⁶ ----- | 81 | 92.7 | 25.8 | 43.5 |
| Gluten feed----- | 85 | 83 | 76 | 89 |
| Gluten meal----- | 88 | 93 | ----- | 88 |
| Grain screenings (ground) ³ ----- | 65.5 | 63.6 | 17.5 | 80.6 |
| Grain screenings ⁶ ----- | 71.8 | 88.5 | ----- | 73.2 |
| Hominy feed----- | 65 | 92 | 67 | 89 |
| Kafir corn----- | 46 | 46 | ----- | 60 |
| Linseed meal (old process)----- | 89 | 89 | 57 | 78 |
| Linseed meal (new process)----- | 84 | 89 | 74 | 80 |
| Malt sprouts ² ----- | 77 | 85 | 80 | 87 |
| Oats----- | 77 | 89 | 31 | 77 |
| Oat middlings----- | 81 | 94 | 49 | 96 |
| Oatmeal by-products----- | 65 | 90 | 32 | 42 |
| Oat hulls ³ ----- | 50.1 | 76.7 | 59.9 | 52.7 |
| Palm kernel oil meal ⁹ ----- | 95 | 95 | 94 | 82 |
| Peanut cake from meats ² ----- | 90 | 90 | 9 | 84 |
| Peanut cake, hulls and meats ² ----- | 71 | 90 | 12 | 49 |
| Rice ² ----- | 86 | 90 | ----- | 100 |
| Rice bran----- | 64 | 72 | 21 | 78 |
| Rice hulls ² ----- | 10 | 67 | ----- | 35 |
| Rice meal ² ----- | 62 | 91 | 4 | 92 |
| Rice polish----- | 67 | 82 | 26 | 91 |
| Rye ⁵ ----- | 79.4 | 74.5 | 79.2 | 70.1 |
| Rye meal----- | 84 | 64 | ----- | 92 |
| Rye mixed feed (bran and middlings) ² ----- | 80 | 90 | ----- | 88 |
| Soybean meal ² ----- | 84 | 82 | 81 | 73 |
| Soybean oil meal ² ----- | 92 | 68 | 99 | 100 |
| Wheat bran (spring)----- | 76 | 63 | 44 | 74 |
| Wheat bran (winter)----- | 77 | 64 | 27 | 65 |
| Wheat chaff ² ----- | 26 | 43 | 39 | 33 |
| Wheat middlings (flour)----- | 88 | 86 | 36 | 88 |
| Wheat middlings (standard)----- | 77 | 88 | 30 | 78 |
| Wheat bran and middlings (shipstuff)----- | 78 | 87 | 62 | 77 |
| Roughage | | | | |
| Corn fodder (mature)----- | 45 | 70 | 63 | 73 |
| Corn stover----- | 36 | 67 | 64 | 59 |
| Corn silage (mature)----- | 50 | 82 | 64 | 71 |
| Barley straw----- | 20 | 42 | 56 | 54 |
| Oat straw----- | 23 | 39 | 60 | 51 |
| Pea vine straw----- | 60 | 46 | 52 | 64 |
| Rye straw ² ----- | 23 | 36 | 55 | 39 |
| Soy bean vine straw ² ----- | 50 | 60 | 38 | 66 |
| Wheat straw ² ----- | 23 | 31 | 50 | 37 |
| Alfalfa hay----- | 72 | 43 | 47 | 72 |
| Alsike clover hay----- | 66 | 38 | 50 | 66 |
| Cow pea hay----- | 65 | 50 | 43 | 71 |

TABLE I.—Average Digestion Coefficients of Feeding Stuffs (continued)

| Feeding stuffs | Per cent. | | | |
|---|---------------|-----------|-------------|-----------------------|
| | Crude protein | Crude fat | Crude fiber | Nitrogen free extract |
| Crimson clover hay ----- | 69 | 44 | 45 | 62 |
| Red clover hay ----- | 58 | 55 | 54 | 64 |
| Soy bean hay ----- | 71 | 29 | 61 | 69 |
| Timothy hay ----- | 48 | 50 | 50 | 62 |
| Miscellaneous | | | | |
| Dried blood ----- | 84 | ----- | ----- | ----- |
| Flax plant by-product and molasses ³ ----- | 62.5 | 59.7 | 31.8 | 62.6 |
| Molasses, beet ⁷ ----- | 52 | ----- | ----- | 91 |
| Molasses, cane ⁷ ----- | ----- | ----- | ----- | 86 |
| Molasses feed (Sucrene, Holstein, Macon) ----- | 63 | 88 | 52 | 80 |
| Meat scraps ----- | 93 | 98 | ----- | ----- |
| Skim milk ² ----- | 94 | 98 | 98 | ----- |
| Tankage ⁸ ----- | 71 | 100 | ----- | 100 |

¹ Reports Massachusetts Agricultural Experiment Station. "Experiments with Ruminants," Lindsay's compilation

² "Feeds and Feeding." Henry and Morrison

³ Maryland Agricultural Experiment Station Bulletin No. 168. Patterson and White

⁴ German experiments give coefficient as 26

⁵ Office of Experiment Stations, United States Department of Agriculture, Bulletin No. 77

⁶ Massachusetts Agricultural Experiment Station, Bulletin No. 158

⁷ Massachusetts Agricultural Experiment Station, Bulletin No. 118

⁸ "Feeds and Feeding." Experiments with swine. Henry and Morrison

⁹ "Scientific Feeding of Farm Animals." Kellner

DEFINITIONS AND DESCRIPTIONS OF FEEDING STUFFS

In accepting certificates for registration of feeding stuffs to be sold in Indiana the definitions adopted by the Association of Feed Control Officials are followed closely. It is not thought necessary to reprint all the definitions of feeding stuffs as these have appeared each year in the commercial feeding stuffs bulletin. A few copies of Bulletins Nos. 190 and 209 containing complete definitions, are still available and will be sent free upon request.

The State Chemist deems it advisable to again publish the following definitions:

1. Those which appear to be misunderstood by the Indiana trade.
2. Tentative definitions adopted tentatively by the Association of Feed Control Officials at the 1917 annual meeting. These definitions are marked with an asterisk (*). Final action will be taken at the next annual meeting in November, 1918, regarding these definitions.

3. When definitions are not available from the Association of Feed Control Officials the materials are defined in accordance with the best information obtainable by the State Chemist's Department. Definitions not from the A. F. C. O. are marked with a double asterisk (**).

Corn germ meal is a product in the manufacture of starch, glucose and other corn products and is the germ layer from which a part of the corn oil has been extracted.

Owing to the scarcity of fats due to the world war, corn germ meals are taking a prominent place among feeding stuffs. The oil obtained is used for edible purposes, manufacture of soaps, etc. According to estimations made from data available, about 26,687 tons of corn germ meal were sold in Indiana during 1917 as against 11,375 tons in 1916.

It is of interest to note that there are two distinct classes of corn germ meals.

One is a by-product in the manufacture of hominy and products demanding similar processes, and will carry from 6.0 to 8.0 per cent. crude fat and from 17 to 20 per cent. crude protein.

The other is a by-product in the manufacture of starch, glucose, etc., and will carry 7.0 to 12 per cent. crude fat and 18 to 24 per cent. crude protein.

The manufacturers of corn germ meal may state if desired, the source of this by-product when applying for registration and the same will appear on the labels furnished.

*Corn feed meal is the by-product obtained in the manufacture of cracked corn, with or without aspiration products added to the siftings, and is the by-product obtained in the manufacture of table meal from the whole grain by the non-degerminating process.

*Hominy feed, hominy meal or hominy chop is a kiln-dried mixture of the mill run bran coating, the mill run germ, with or without a partial extraction of the oil and a part of the starchy portion of the white corn kernel obtained in the manufacture of hominy, hominy grits and corn meal by the degerminating process.

*Yellow hominy feed, yellow hominy meal or yellow hominy chop is a kiln-dried mixture of the mill run bran coating, the mill run germ, with or without a partial extraction of the oil and a part of the starchy portion of the yellow corn kernel obtained in the manufacture of yellow hominy grits and yellow corn meal by the degerminating process.

**Corn mill feed is all of the mill run by-product produced in the manufacture of corn meal or corn flour from cleaned shelled corn and consists of corn bran, corn germ and some meal.

Corn feed meal and corn bran are confused by the trade in Indiana. From the definitions given above and from general information available regarding the analysis of different parts of the corn kernel, the real corn bran should contain less crude fat and more crude fibre than corn feed meal. A comparison of the 1917 corn bran and corn feed meal samples analyzed shows that 21 samples of material registered as corn bran in 1917 averaged 7.1 per cent. crude fat and 10.3 per cent. crude protein, while 46 samples registered as corn feed meal secured and analyzed during the same period, averaged 4.8 per cent. crude fat and 9.5 per cent. crude protein. This shows conclusively that many corn bran registrations are in fact corn mill feed and manufacturers will be asked by the State Chemist to properly re-register these brands under appropriate names.

If corn bran is cleanly separated and contains no appreciable amounts of corn germ or corn feed meal it should analyze from 2.0 to 2.5 per cent. crude fat, 7.0 to 9.0 per cent. crude protein and contain not more than 10 per cent. crude fiber. Corn feed meal, siftings from cracked corn, which does not contain excessive amounts of corn bran will analyze between 4.0 and 5.0 per cent. crude fat, 8.0 and 9.5 per cent. crude protein and should contain less than 6.0 per cent. crude fiber.

Manufacturers' attention is also called to the definition of corn mill feed accepted by the State Chemist. In the manufacture of corn meal or corn flour, provided no further separation of the corn by-product is made

beyond the taking out of the corn meal or corn flour, the term corn mill feed properly covers this material which should analyze very similar to hominy feed of previous years.

The trade in Indiana is confronted at this time with a serious change in hominy feed, meal or chop. At a meeting of the Association of Feed Control Officials held at Richmond, Virginia, in November, 1917, tentative definitions were made, which will allow most of the product formerly sold as corn feed meal to be hereafter branded and sold as hominy feed, meal or chop. These hominy feed definitions refer to both white and yellow corn.

At this same meeting, a motion made by the Acting State Chemist of Indiana to adopt a standard percentage of crude fat, protein and fibre for materials which could be classed under this definition, was defeated. The Acting State Chemist has hesitated to adopt *this definition* as many corn feed meals containing less crude fat and crude protein than is contained in hominy feed, could under this ruling be sold as hominy feed. In order, however, to cooperate to the best advantage with other state officials and also with manufacturers engaged in interstate shipments of hominy feed, the State Chemist may accept the new definition of hominy feed, meal or chop after January 1, 1919, provided these definitions are made final at the next annual meeting of the Association of Feed Control Officials.

Agents and consumers who formerly purchased hominy feed mostly on the brand name, paying little attention to the guarantee, should note that from best information available, the 40,000 tons of hominy feed sold in the State in 1917, averaged 8.2 per cent. crude fat and 11.2 per cent. crude protein, while during the same period, the 3,281 tons of corn feed meal averaged 4.8 per cent. crude fat and 9.5 per cent. crude protein. It certainly appears advisable that after January 1, 1919, strict attention should be given to the guaranteed percentages of crude fat, crude protein and crude fiber on the hominy meal, feed or chop.

"E. SPECIAL REGULATIONS APPLYING TO DEALERS IN HOMINY FEED¹

Rule 1. Specifications for hominy feed.—On and after Aug. 1, 1918, the licensee shall not knowingly quote, sell, or label products of corn under the following designations unless they conform to the following specifications. In cases where the licensee after an inspection of the goods has no reason to suspect a failure to conform to the specifications, he shall not be held to violate this rule if he quotes or sells products under the designation used by the miller selling to him.

Hominy feed, hominy meal, or hominy chop.—Shall be a kiln-dried mixture of the mill run bran coating, the mill run germ, with or without a partial extraction of the oil and a part of the starchy portion of the corn kernel obtained in the manufacture of hominy, hominy grits, and corn meal by the degerminating process from clean, sound white corn, shall contain not to exceed 14 per cent. moisture, not to exceed 7 per cent.

¹ This ruling settles the hominy controversy

fiber, not less than 10 per cent. protein, not less than 5 per cent. fat, and shall have a texture fine enough to sift through No. 12 wire bolting cloth.

Yellow hominy feed, yellow hominy meal, or yellow hominy chop shall conform to the specifications for hominy meal, hominy flour, or hominy chop in all respects except that it shall be made from clean sound yellow corn instead of white corn.

HERBERT HOOVER,

July 14, 1918.

United States Food Administrator."

****Barley Mixed Feed with Ground Barley Screenings with Ingredients** stated as barley hulls, barley bran, barley middlings and ground barley screenings.—In the milling of barley flour for human consumption, in mills inspected by representatives of the State Chemist's Department, the barley screenings are removed at the start of the process, the cleaned barley being then run through the ordinary wheat flour mill or rye flour mill and the barley flour taken out. The product remaining, namely barley hulls, bran and middlings is mixed with the ground barley screenings originally taken out. The resultant by-product is sold in Indiana under above brand name and with ingredients given as barley hulls, bran, middlings and ground barley screenings.

****Barley Mill Feed with Ground Barley Screenings.**—This term is similar to barley mixed feed with ground barley screenings and is optional with the manufacturer.

In general, materials of this nature are sold in Indiana under guarantees of 2.0 to 3.0 per cent. of crude fat; 8.0 to 10 per cent. of crude protein, and not to contain over 18 to 25 per cent. of crude fiber.

VELVET BEAN PRODUCTS

****Velvet bean feed** is the dried ground velvet beans and pods.

****Velvet bean meal** is the dried ground velvet bean and cannot contain the ground pods.

Several brands of velvet bean feed are now registered with the State Chemist's Department and appear in this bulletin in Table IV. In general, this product is guaranteed to contain 4.0 per cent. crude fat, 16 to 18 per cent. crude protein and 15 to 20 per cent. crude fiber.

Velvet bean meal is not offered for sale in Indiana at this time.

****Delinted cottonseed hulls** is the product resulting from the entire removal of all particles of lint from the outer portion of the cottonseed hulls. When added to cottonseed meal or mixed with other feeds, the term ground or unground delinted cottonseed hulls must be listed as an ingredient.

Corn cob meal, peanut hull meal and delinted cottonseed hulls have a very high percentage of crude fiber and contain somewhat less digestible nutrients than oat straw, and only a very great scarcity of home grown roughage can ever justify their purchase in Indiana.

Table II contains the average percentage of crude fat and crude protein of the 1917 inspection samples, collected and arranged in 29 general types.

The amounts of crude fat and crude protein obtained for \$1.00 in each class of feed is also shown in Table II. In connection with the latter information, it should be noted that the pounds of total not digestible feeding ingredients are given and that in using the data in Table II in purchasing feeding stuffs, the digestibility and palatability of the materials used, as well as the home grown feeding stuff available for use in the ration, must receive careful consideration. The consumer should also consider the percentage of crude fiber which when present in considerable quantities exerts a retarding influence on the digestion of nutrients present. The numerous feeding investigations carried on by the experiment stations show that many feeds containing similar amounts of digestible crude fat and crude protein often have very different feeding values.

The cost of many feeds doubled in 1917 while the costs of others have made only a slight advance and when the consumer in compounding a ration has a choice between several feeds which are equally good as regards feeding value and adaptability to the animal, he can use Table II to advantage, more especially if he will compare similar feeds by the method given below, which was the method followed in ascertaining the pounds of crude fat and crude protein obtained for \$1.00.

Example.—Cottonseed meal containing 7.9 per cent. of crude fat and 38.9 per cent. of crude protein is offered at \$47.35 a ton while cottonseed feed containing 4.9 per cent. crude fat and 27.6 per cent. crude protein can be bought for \$40.03 a ton.

Cottonseed meal, \$47.35 a ton $\div 20 = \$2.37$ per 100 pounds.

7.9 pounds crude fat in 100 pounds $\div 2.37 = 3.3$ pounds crude fat for \$1.00.

38.9 pounds crude protein in 100 pounds $\div 2.37 = 16.4$ pounds crude protein for \$1.00.

Cottonseed feed, \$40.03 a ton $\div 20 = \$2.00$ per 100 pounds.

4.9 pounds crude fat in 100 pounds $\div 2.00 = 2.5$ pounds crude fat for \$1.00.

27.6 per cent. crude protein in 100 pounds $\div 2.00 = 13.8$ pounds crude protein for \$1.00.

Thus in buying cottonseed meal at \$47.35 a ton, one actually purchases 3.3 pounds of crude fat and 16.4 pounds of crude protein for \$1.00. The same dollar would buy only 2.5 pounds of crude fat and 13.8 pounds of crude protein if cottonseed feed were bought at the rate of \$40.03 a ton. In addition, the cottonseed meal would not contain over 10 per cent. of crude fiber while the cottonseed feed would contain over 20 per cent. of crude fiber due to the excess cottonseed hulls, which is not desirable.

Table I giving average digestion coefficients of feeding stuffs found on page 11 can at this time be profitably used. To illustrate, the 13.8 pounds of crude protein in cottonseed feed purchased for \$1.00 multiplied by 51, gives seven pounds of digestible crude protein. The 16.4 pounds of crude protein in cottonseed meal purchased for \$1.00, multiplied by 84 gives 13.8 pounds of digestible crude protein or nearly twice the amount of digestible crude protein that could be purchased in 1917 in cottonseed meal than could be obtained in cottonseed feed.

TABLE II.—Average Analyses of Twenty-nine Classes of Feeding Stuffs and Pounds of Crude Fat and Crude Protein Obtainable for \$1.00

| Kind of feed | Number samples analyzed | Water, per cent. | Crude fat, per cent. | Crude protein, per cent. | Average retail price per ton, dollars | Range in retail price per ton, dollars | Pounds for one dollar | |
|--|-------------------------|------------------|----------------------|--------------------------|---------------------------------------|--|-----------------------|---------------|
| | | | | | | | Crude fat | Crude protein |
| Mill by-products—wheat bran, middlings, rye feeds, red dog, etc., with and without screenings----- | 957 | 9.8 | 4.1 | 14.9 | 43.73 | 26—80 | 1.9 | 6.8 |
| Poultry feed—without grit----- | 139 | 10.6 | 3.6 | 10.9 | 73.84 | 48—100 | 1.0 | 3.0 |
| with grit----- | 106 | 9.7 | 3.3 | 10.3 | 75.31 | 40—100 | 0.9 | 2.7 |
| poultry mash----- | 43 | 8.9 | 4.3 | 16.9 | 64.97 | 44.80—100 | 1.3 | 5.2 |
| Proprietary feeds—containing molasses----- | 258 | 12.1 | 3.4 | 13.8 | 47.63 | 28—70 | 1.4 | 5.8 |
| without molasses----- | 126 | 8.9 | 5.0 | 17.7 | 52.28 | 20—100 | 1.9 | 6.8 |
| Hominy feed----- | 60 | 8.4 | 8.2 | 11.2 | 56.66 | 42—77 | 2.9 | 4.0 |
| Corn bran----- | 21 | 9.7 | 7.1 | 10.3 | 30.43 | 20—45 | 4.7 | 6.8 |
| Corn feed meal----- | 46 | 10.3 | 4.8 | 9.5 | 59.42 | 40—76 | 1.6 | 3.2 |
| Corn germ meal----- | 76 | 6.6 | 9.1 | 21.1 | 55.00 | 38—72 | 3.3 | 7.7 |
| Corn gluten feed----- | 17 | 8.7 | 4.1 | 26.1 | 51.81 | 42—65 | 1.6 | 10.1 |
| Corn gluten meal----- | 5 | 8.2 | 0.8 | 43.1 | 56.40 | 52—60 | 0.3 | 15.3 |
| Miscellaneous chops----- | 138 | 10.0 | 4.2 | 10.5 | 53.85 | 26—90 | 1.6 | 3.9 |
| Corn and oats chop----- | 38 | 10.1 | 4.3 | 10.0 | 56.89 | 38—75 | 1.5 | 3.5 |
| Wheat middlings and palm oil----- | 28 | 5.4 | 8.6 | 17.0 | 47.58 | 30.89—60 | 3.6 | 7.1 |
| Alfalfa meal----- | 16 | 8.8 | 1.8 | 13.0 | 40.98 | 33—70 | 0.9 | 6.4 |
| Animal by-products----- | 280 | 12.2 | 6.5 | 57.5 | 79.97 | 20—160 | 1.6 | 14.4 |
| Cottonseed meal----- | 312 | 6.8 | 7.9 | 33.9 | 47.35 | 33—62 | 3.3 | 16.5 |
| Cottonseed feed----- | 20 | 7.4 | 4.9 | 27.6 | 40.03 | 29.50—58 | 2.5 | 13.8 |
| Cold pressed cottonseed----- | 3 | 6.7 | 10.1 | 27.5 | 38.90 | 33.60—39.20 | 5.2 | 14.2 |
| Linseed meals----- | 45 | 8.3 | 7.0 | 35.1 | 56.51 | 45.20—70 | 2.5 | 12.4 |
| Unscreened flaxseed oil feed----- | 2 | 7.9 | 9.2 | 26.2 | 55.00 | 50—60 | 3.3 | 9.5 |
| Distillers' dried grains----- | 28 | 6.7 | 10.3 | 32.1 | 43.28 | 35—55 | 4.8 | 14.8 |
| Brewers' dried grains----- | 13 | 6.1 | 6.9 | 28.7 | 41.20 | 27—52 | 3.3 | 13.9 |
| Dried yeast grains----- | 1 | 7.9 | 6.7 | 19.2 | 31.00 | ----- | 4.3 | 12.3 |
| Dried beet pulp----- | 2 | 7.3 | 0.9 | 10.2 | 40.00 | 34—46 | 0.5 | 5.1 |
| Calf meals----- | 10 | 8.9 | 5.4 | 24.4 | 114.09 | 55.80—320 | 0.9 | 4.3 |
| Velvet bean feeds----- | 7 | 9.0 | 4.5 | 18.9 | 43.00 | 35—47 | 2.1 | 8.8 |
| Dried cocoanut meats----- | 2 | 8.6 | 7.6 | 21.6 | 55.00 | ----- | 2.8 | 7.9 |
| Condimental stock feeds----- | 24 | 14.7 | 2.1 | 7.2 | 284.07 | 35.25—1000 | 0.1 | 5.1 |
| Condimental poultry feeds----- | 16 | 7.4 | 4.2 | 13.8 | 298.61 | 132—506.66 | 0.3 | 0.9 |
| Miscellaneous—corn germ meal and corn distillers grains----- | 1 | 5.8 | 9.7 | 24.1 | 44.00 | ----- | 4.4 | 10.9 |

ESTIMATED SALES 1917 COMPARED WITH THOSE OF 1916 AND 1915

An annual report of sales is required of each person or firm registering brands of feeding stuff, but owing to frequent changes of ownership and inaccurate records kept by many dealers, it is impossible to secure data showing the exact amount of feed sold annually.

Based on sale of labels, reports from manufacturers, data collected by inspectors of the Department and other available information, the estimated sales are 379,152 tons in 1917 as against 317,664 tons in 1916, 270,339 tons in 1915 and 271,751 tons in 1914. The estimated retail value of feeds sold in 1917 is \$21,700,101 being twice the value of feed sold in 1916.

Table III shows the estimated sales for different classes of feed for 1915, 1916 and 1917 together with estimated expenditures for 1916 and 1917.

TABLE III

| Kind of feed | Estimated tons | | | Estimated retail value, dollars | |
|---|----------------|---------|---------|---------------------------------|------------|
| | 1915 | 1916 | 1917 | 1916 | 1917 |
| Mill by-products—wheat bran, middlings, rye feeds, red dog, etc., with and without screenings ----- | 119,408 | 146,085 | 137,750 | 4,272,972 | 6,023,807 |
| Poultry feed—without grit ----- | 18,281 | 20,519 | 19,094 | 803,594 | 1,400,900 |
| with grit ----- | 15,718 | 14,688 | 14,125 | 616,141 | 1,063,753 |
| poultry mash ----- | 1,344 | 1,688 | 2,937 | 78,047 | 190,816 |
| Proprietary feeds—containing molasses ----- | 34,066 | 30,220 | 33,687 | 963,111 | 1,604,511 |
| without molasses ----- | 7,780 | 9,086 | 22,687 | 302,739 | 1,186,076 |
| Hominy feed ----- | 28,431 | 38,625 | 40,062 | 1,069,951 | 2,269,912 |
| Corn bran ----- | 375 | 256 | 281 | 5,241 | 8,550 |
| Corn feed meal ----- | 1,137 | 1,406 | 3,281 | 44,973 | 194,957 |
| Corn germ meal ----- | 7,219 | 11,375 | 27,687 | 356,492 | 1,522,785 |
| Corn gluten feed ----- | 3,594 | 3,938 | 5,687 | 116,904 | 294,643 |
| Corn gluten meal ----- | ----- | 125 | 125 | 4,959 | 7,050 |
| Corn and oats chop ----- | 1,875 | 1,656 | 1,937 | 55,087 | 110,195 |
| Miscellaneous chop ----- | 5,111 | 4,781 | 4,437 | 156,594 | 239,932 |
| Wheat middlings and palm oil ----- | 1,125 | 2,188 | 8,094 | 66,019 | 385,112 |
| Palmo mixed feed ----- | ----- | ----- | 94 | ----- | ----- |
| Alfalfa meal ----- | 313 | 438 | 781 | 13,337 | 32,005 |
| Animal by-products ----- | 6,406 | 9,281 | 16,062 | 449,053 | 1,284,478 |
| Cottonseed meal ----- | 11,094 | 13,338 | 18,500 | 520,429 | 875,975 |
| Cottonseed feed ----- | 250 | 219 | 1,719 | 7,220 | 68,811 |
| Cold pressed cottonseed ----- | 406 | 469 | 187 | 14,273 | 7,274 |
| Linseed meals ----- | 2,968 | 1,625 | 5,094 | 71,191 | 287,861 |
| Unscreened flaxseed oil feed ----- | 531 | 500 | 438 | 24,829 | 24,090 |
| Distillers' dried grains ----- | 188 | 2,189 | 2,500 | 71,258 | 108,200 |
| Brewers' dried grains ----- | 1,343 | 1,750 | 2,094 | 50,569 | 86,272 |
| Dried yeast grains ----- | ----- | 125 | 94 | 2,750 | 2,914 |
| Malt sprouts ----- | 32 | 31 | 94 | 939 | ----- |
| Dried beet pulp ----- | 136 | 63 | 94 | 1,844 | 3,700 |
| Calf meals ----- | 938 | 1,000 | 1,062 | 86,000 | 121,163 |
| Velvet bean feeds ----- | ----- | ----- | 497 | ----- | 17,501 |
| Dried coconut meal ----- | ----- | ----- | 125 | ----- | 6,875 |
| Condimental stock feeds ----- | ----- | ----- | 2,062 | ----- | 585,752 |
| Condimental poultry feeds ----- | ----- | ----- | 5,625 | ----- | 1,669,671 |
| Miscellaneous ----- | 250 | ----- | ----- | ----- | ----- |
| Oat middlings ----- | ----- | ----- | 62 | ----- | ----- |
| Rice bran and rice polish ----- | ----- | ----- | 31 | ----- | ----- |
| Toasted corn flakes ----- | ----- | ----- | 31 | ----- | ----- |
| Corn germ meal and corn distillers dried grains ----- | ----- | ----- | 125 | ----- | 5,500 |
| Totals ----- | 270,339 | 317,664 | 379,152 | 10,316,516 | 21,700,101 |

The annual increase in tonnage and expenditures for feeding stuffs for the past six years is summarized in the following statement:

| Year | 1912 | 1913 | 1914 | 1915 | 1916 | 1917 |
|---------------------------------------|-----------|-----------|-----------|-----------|------------|------------|
| Estimated sales, tons ----- | 196,752 | 217,689 | 271,751 | 270,339 | 317,664 | 379,152 |
| Estimated retail value, dollars ----- | 6,371,571 | 6,466,645 | 8,461,751 | 8,821,684 | 10,316,516 | 21,700,101 |

SUMMARY OF ENFORCEMENT OF THE FEEDING STUFFS CONTROL LAW

Since July 1, 1907, inspectors have secured 28,395 official samples in the State, 26,648 of which have been analyzed chemically and microscopically, 1,518 microscopically only, and 229 discarded.

The following summary gives in brief form results for each year:

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| Year | 1907 ¹ | 1908 ² | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 | 1917 |
|--|-------------------|-------------------|------|------|------|------|------|------|------|
| Number of samples secured ----- | | | 2303 | 2433 | 2903 | 3105 | 3775 | 3877 | 3058 |
| Number of samples analyzed ----- | 1452 | 2702 | 2085 | 2349 | 2096 | 2943 | 3469 | 3535 | 2893 |
| Per cent. up to guarantee ----- | 57.2 | 67.1 | 75.3 | 74 | 79.7 | 82 | 79.4 | 75.7 | 68.9 |
| Per cent. below guarantee in fat only ----- | 24.7 | 22.4 | 16.1 | 17.5 | 9.4 | 9.6 | 9.9 | 8.1 | 6.7 |
| Per cent. below guarantee in crude protein only ----- | 13.9 | 16.2 | 7.5 | 4.8 | 6.0 | 6.1 | 8.3 | 12.7 | 9.1 |
| Per cent. below guarantee in both crude fat and crude protein ----- | 5.9 | 7.6 | 2.9 | 2.4 | 3.4 | 2.3 | 2.4 | 3.3 | 2.3 |
| Per cent. misbranded as to presence of inferior ingredients ³ ----- | 9.9 | 13.0 | 3.2 | 2.7 | 4.0 | 3.8 | 3.8 | 2.5 | 12.6 |

¹ July 1, 1907—July 1, 1908² July 1, 1908—Jan. 1, 1910³ Includes samples examined microscopically

It is practically impossible to place the results secured from the enforcement of the law on a dollars and cents basis but special attention is requested to the great reduction in percentage of samples found deficient which has decreased since the first inspection from 24.7 per cent. for crude fat, 13.9 for crude protein, 5.9 for both crude fat and crude protein in 1907 to 6.7, 9.1 and 2.3 respectively in 1917. In fact, the 1917 inspection samples in this respect compare very favorably with any year since the law has been in effect.

SHIPMENTS REMOVED FROM SALE

The following tabulation is a summary of the feeding stuffs removed from sale in 1917. This table shows the number of shipments withdrawn, also the amounts and the specific reasons for their withdrawal; including the number of manufacturers and towns represented.

This tabulation shows that of the 389 samples of feeding stuffs removed from sale, over 50 per cent. were not tagged, about 25 per cent. were misbranded, 7.0 per cent. deficient in protein, 6.0 per cent. had conflicting guarantees, 5.0 per cent. were deficient in protein and also adulterated, and the remaining 7.0 per cent. deficiencies in fat or protein, excess fiber, improperly labeled, etc.

In most cases labels were furnished by the manufacturers for the untagged shipments and settlement was made for misbranding, deficiencies or excess fiber by re-registering and relabeling with a State Chemist's label, showing a guarantee that could be maintained. Where this was not done, shipments were returned to the manufacturer and replaced with others that were satisfactory in every particular. A refund was paid by reputable manufacturers to agents and consumers when the deficiency was deemed sufficient to warrant such action.

| Number of shipments withdrawn from sale | Number of manufacturers represented | Number of towns represented | Reasons for withdrawal from sale | Amount withdrawn, pounds |
|---|-------------------------------------|-----------------------------|--|--------------------------|
| 200 | 92 | 100 | Not tagged ----- | 1,708,002 |
| 3 | 3 | 3 | Deficiency in crude fat ----- | 14,419 |
| 27 | 15 | 18 | Deficiency in crude protein ----- | 291,025 |
| 1 | 1 | 1 | Deficiency in both crude fat and crude protein ----- | 6,000 |
| 3 | 2 | 3 | Excess fiber ----- | 9,900 |
| 2 | 2 | 2 | Deficiency in fat, excess fiber ----- | 60,900 |
| 2 | 2 | 2 | Deficiency in protein, excess fiber ----- | 32,000 |
| 8 | 6 | 7 | Deficiency in fat and protein, excess fiber ----- | 57,300 |
| 3 | 3 | 3 | Deficiency in fat and adulterated ----- | 3,400 |
| 19 | 8 | 17 | Deficiency in protein and adulterated ----- | 158,700 |
| 2 | 1 | 2 | Deficiency in fat, protein and adulterated ----- | 17,800 |
| 91 | 38 | 56 | Misbranding ----- | 1,061,900 |
| 1 | 1 | 1 | Incorrect guarantee ----- | 800 |
| 3 | 3 | 3 | Wrong label ----- | 2,700 |
| 24 | 12 | 16 | Conflict ----- | 185,300 |
| 389 | 133 ¹ | 155 ¹ | Totals ----- | 3,605,146 |

¹ These totals are not the sum of the respective columns, but are actually the number of manufacturers and towns represented

REFUNDS

Refunds paid for deficiencies due to error for which reasonable explanations are available, may justly be considered as indicating the desire of the manufacturer to do everything possible to recompense his customers.

The analyses of all official feed samples appear in Table IV, the main inspection table. Consumers and agents are referred to results given in Table IV. The foot note at the bottom of the page on which the analyses appear, explains the final adjustment, if any, which was made on deficient shipments. Failure of this foot note to appear means that manufacturers did not see fit to adjust this shipment or did not notify the State Chemist of the adjustment. A little study of these results will enable agents and consumers to familiarize themselves with the manufacturer who adjusts deficient shipments and the manufacturer who does not adjust deficient shipments. Purchasers of feed may feel certain however that the cases requiring a payment of refund by any one manufacturer naturally will be very few, if ordinary care is used in the manufacture and registration of feeding stuffs. Refunds never fully compensate the purchaser for failure to obtain material ordered. Manufacturers are requested to note that the Indiana purchasers desire the feed purchased and not refunds.

Retailers receiving refunds are expected to distribute same to the actual consumers on the basis of amount purchased. If permission is given to relabel, the price must be reduced on the basis of inspection results.

While the State Chemist appreciates the desire of the manufacturer to do what is fair by his customers, since there is no provision in the law for compensation of deficiencies by refunds, their payment will be considered as evidence of good faith but will not, in any way affect the right of the State Chemist to take such action as may be considered advisable.

The sum of \$1,209.46 was refunded by 24 manufacturers to agents and consumers in 1917 to adjust 29 deficient brands representing 627 tons.

In addition to the above refunds, the State Chemist was informed that a shipment of tankage containing foreign material injured the health of several hogs and caused the death of others. Some of the hogs were subjected to a post-mortem examination by practicing veterinarians who made affidavit to the effect that the foreign substance found in the tankage was the direct cause of the death of the hogs in question. Two Indiana feeders were refunded the sum of \$1875 in settlement for their losses.

COOPERATION WITH THE U. S. DEPARTMENT OF AGRICULTURE

All interstate shipments showing deficiencies or adulterations sufficient to justify are sampled not only under the state law but also under the Federal Food and Drugs Act. The state samples are entirely independent of those secured under the Federal Act which are forwarded to the United States laboratory, for the central district, in Chicago. The State Chemist has absolutely no control over such samples or the subsequent proceedings which may be taken under the Federal law, nor do said samples or proceedings in any way affect proceedings against local dealers under the state law.

The State Chemist's Department continuing its cooperation with the Federal Government under the Federal Food and Drugs Act, sent to the Central District, United States Bureau of Chemistry, 47 samples of interstate shipments representing 25 manufacturers and 14 types of feed. Since November, 1911, the Department has collected and sent United States laboratories, 248 samples of interstate shipments representing 142 manufacturers and 122 types of feed.

SAMPLES EXAMINED MICROSCOPICALLY

Twenty-eight hundred ninety-three samples of the 3058 secured in 1917, were analyzed chemically and microscopically; 165 were not analyzed chemically, as many of them were duplicate samples of shipments already analyzed, or samples which had been secured from small lots of feed. These 165 samples were subjected to microscopic analyses only and eight samples, all of them mill feed, showed adulteration with screenings.

ANIMAL BY-PRODUCTS

Tankage, meat scraps, blood meal and other animal by-products were very much in demand in 1917; 16,062 tons were retailed at \$1,284,478 in comparison with 9,281 tons and \$449,053 in expenditure in 1916. Although the average retail price of this type of feed is relatively high, \$79.97 per ton, the amount of protein carried is also high so that 14.4 pounds of protein and 1.6 pounds of fat was the average amount purchased for \$1.00 in 1917. One hundred fifty-eight samples of the 280 analyzed were up to guarantee in every particular, 41 were deficient in crude fat, 84 were deficient in crude protein, 10 were deficient in both crude fat and crude protein, 101 were adulterated mostly with intestinal offal, sand or glass and 56 were deficient one per cent. or more in crude protein. Of the shipments deficient one or more per cent. in crude protein, adjustments were made by the manufacturer in most cases to the agent or consumer by relabelling and refunding a portion of the purchase price;

\$279.85 representing eight manufacturers and eight brands was refunded on animal by-product shipments in 1917.

One hundred thirty-six tons representing 11 brands and 10 manufacturers were returned to factories, and either replaced with feed up to guarantee in every particular or else the original cost price was refunded to the purchasers. Six tons of meat scraps found to be deficient in crude protein and to contain ground glass, were seized by Federal agents, condemned and sold at public auction with the understanding that the product would not be again offered for sale for feeding purposes.

For the most effective cooperation with inspectors of the State Chemist's Department, agents and consumers should retain all way-bills and invoices regarding the shipment so that when inspected all necessary information regarding the tankage in question can be furnished.

CONDIMENTAL STOCK FEEDS AND CONDIMENTAL POULTRY FEEDS

Manufacturers of condimental stock and poultry feeds, conditioners, tonics, etc., found a very prolific field in Indiana in 1917. From reports available, it is estimated that 7687 tons at a retail value of \$2,255,423, were sold last year. These figures apply only to samples registered with the State Chemist and possibly as great an amount of materials of this nature which do not come under the law were also sold in the State in 1917.

In general, these preparations are composed of some ordinary feeding stuff or feeding stuff adulterant for a base or carrier together with some common cathartic, generally Glauber's but sometimes Epsom salts, and appetizers, such as gentian, fenugreek, ginger, common salt, anise, with small amounts of worm seed, poke root, copperas, sulphur, etc.

In many cases after the passage of the Feeding Stuffs Control law, names, claims and methods of compounding were changed and the feeding stuff base omitted, salt, Glauber's salts, and similar cheap materials being used in larger amounts and some of the largest sellers on the market today contain 90 per cent. and over of common salt. One large seller in a near-by county proved on analysis to contain 98 per cent. of lime, colored with Venetian red. This condimental is not registered under the law and would make a fine "white-wash" for barns, provided no objection was raised to the red color and to the original cost.

As stated in previous bulletins, the large majority of properly conducted experiments fails to show profitable results from the use of these preparations but those who wish to use them are requested, both in cooperation with the State Chemist and for their own protection, to purchase those which are registered and thus obtain the protection which the law affords.

Consumers of Indiana who pay \$2,255,423 a year for feeds of this type, would do well to give the matter careful study and consideration before purchasing feeds.

COTTONSEED MEAL

The sales of cottonseed meal in 1917 were estimated at 18,500 tons with an estimated retail value of \$875,975. Referring to Table II, it is noted that the average protein found was 38.9 per cent. while 16.5 pounds

of protein and 3.3 pounds of fat were the average amounts obtained for \$1.00 in 1917, cottonseed meal being the cheapest protein feed.

Two hundred fifteen of the 312 samples analyzed were up to guarantee; 10 were deficient 0.3 per cent. or more in crude fat; six were deficient in both crude fat and crude protein and 28 were deficient 1.0 per cent. or more in crude protein. Fourteen manufacturers representing 19 brands refunded to the agents and consumers \$887.99 on shipments of cottonseed meal found more than 1.0 per cent. deficient in protein.

Inasmuch as the majority of this meal is handled by brokers, it becomes necessary that the agents and consumers retain all data regarding their shipments of this product, so that the brokers will be in a position to trace the car and determine the cotton oil mill that originally furnished the feed in question.

CORN BRAN AND CORN FEED MEAL

It is to be regretted that the most of the so-called corn bran sold in Indiana is incorrectly registered. The 21 samples secured in 1917 average 7.1 per cent. crude fat, showing conclusively that a considerable portion of the corn germ remains with the bran and was sold as corn bran. According to the definition of corn bran adopted by the Association of Feed Control Officials namely, "Corn Bran is the outer coating of the corn kernel." This product should contain, little, if any, corn germ or meal. Corn bran can be safely guaranteed to contain not less than 2.0 per cent. crude fat, 7.0 per cent. crude protein and not more than 10 per cent. crude fiber.

The following comparison between corn bran and corn feed meal samples secured and analyzed in 1917 shows at a glance that the corn bran contained corn germs, and could more correctly be registered as corn mill feed, which term is accepted by the State Chemist for the by-product produced in the manufacture of corn meal or corn flour from cleaned shelled corn.

| Material | Number of samples | Water, per cent. | Crude fat, per cent. | Crude protein, per cent. | Crude fiber, per cent. |
|----------------------|-------------------|------------------|----------------------|--------------------------|------------------------|
| Corn bran ----- | 21 | 9.7 | 7.1 | 10.3 | 6.3 |
| Corn feed meal ----- | 46 | 10.3 | 4.8 | 9.5 | 4.0 |

It is hoped that manufacturers will remedy this condition and secure registrations more representative of their product.

Due to the increased demand for corn flour, the tonnage of corn bran and corn feed meal increased from 1662 tons in 1916 to 3562 tons in 1917.

HOMINY FEED, MEAL OR CHOP

The sales of hominy feed in 1917 were unusually good, 40,062 tons of an estimated retail value of \$2,269,912 being sold in the State. The average content of crude fat and crude protein increased materially over 1916 as did also the percentage of samples up to guarantee in every particular.

The influence of the frosted corn crop upon hominy feed was not materially felt in 1917, the better grades of corn being first used. Since January, 1918, however, many manufacturers have re-registered their hominy feed brands with a lower guarantee of crude fat and crude protein, giving as their reason for so doing, the poor quality of corn now available.

Agents and consumers are advised to examine carefully the manufacturers' guarantees as given on State Chemist's labels. The following comparison illustrates the inspection of hominy feed in 1916 and 1917.

| Hominy feed | Year | Number of samples analyzed | Water, per cent. | Crude fat, per cent. | Crude protein, per cent. | Average retail price per ton | Number of samples up to guarantee |
|-------------------|------|----------------------------|------------------|----------------------|--------------------------|------------------------------|-----------------------------------|
| Hominy feed ----- | 1916 | 67 | 8.3 | 6.8 | 10.6 | 30.29 | 52 |
| Hominy feed ----- | 1917 | 60 | 8.4 | 8.2 | 11.2 | 56.66 | 52 |

POULTRY FEEDS

The United States Food Administration has advocated increasing the supply of poultry and poultry products. Poultry feeds therefore will probably be sold in ever increasing amounts and poultry raisers, feeders and dealers are requested to give attention to the purchase of chicken feeds.

Poultry feeds are divided into two general classes; those containing cereals and seeds without grit, and those containing cereals and seeds with limestone grit, charcoal or oyster shells.

The total tonnage of the poultry feeds sold in 1917 when compared with 1916 sales shows a decrease of 739 tons in 1917.

The estimated expenditure in 1917 was \$2,664,469, an increase of \$1,076,687 over 1916. This increase can be explained by the advanced prices of poultry feeds in 1917.

Assuming 3.0 per cent. as the average amount of grit found in 14,125 tons sold in 1917, which had grit guaranteed, there would have been 423.75 tons of grit which was bought by the feeders of Indiana at approximately the prevailing price of cereals, seeds and other by-products.

Comparing poultry feeds with grit with poultry feeds without grit, as given in Table II page 17, it is readily seen that more pounds of fat and protein are obtained for \$1.00 on poultry feeds without grit.

Comparing the pounds of fat and protein purchased for \$1.00 on both poultry feed with grit and poultry feed without grit by the method given on page 16 the price asked for grit can be readily ascertained.

Whether it would not be more profitable to purchase the grit separately rather than pay feed prices for grit, deserves the careful attention of purchasers and feeders of poultry feeds.

PROPRIETARY FEEDS WITH AND WITHOUT MOLASSES

Brands of proprietary feeds with molasses and without molasses were not staple in 1917. Manufacturers experienced considerable difficulty in obtaining the different ingredients from which they formerly

compounded their proprietary feeds and were often compelled to change the formula and re-register to properly make use of ingredients that could be maintained. Numerous brands were re-registered three or more times during the winter of 1917 and 1918 and while the guarantees of crude fat and crude protein were substantially met, the guaranteed ingredients in many brands were not correct.

The tonnage of proprietary feeds containing molasses in 1917 was 33,687 tons, an increase of 3367 tons over 1916 and from best evidence obtainable the actual amount of molasses used in this class of feeds was much less in 1917 than in 1916.

The tonnage of proprietary feeds without molasses in 1917 was 22,680, being nearly two and one-half times greater than the tonnage sold in 1916.

EXPLANATION OF TABLES

In considering the results and summaries of inspection, it should be noted that in the case of deficient, adulterated or misbranded samples, manufacturers were given 10 days' advance notice and opportunity to request a portion of sample and time for review of the results by their chemist. The results as reported in Table IV are official and final.

Table I, page 11 contains the digestion coefficients of a number of common feeding stuffs as determined by digestion experiments and compiled by various authorities.

Table II, page 17 is the average analyses of 29 classes of feeding stuffs together with the pounds of crude fat and crude protein obtainable for \$1.00.

Table III, page 18 contains the estimated sales of 1917 compared with those of 1915 and 1916 and also the estimated retail value of all feeds sold in 1916 and 1917.

Table IV, page 27 contains the detailed results of samples analyzed chemically and examined microscopically or macroscopically for the year ending December 31, 1917 including manufacturers' guarantees, found composition, names and addresses of persons from whom samples were obtained.

In Table IV the results in the found column of samples showing a deficiency of 0.3 per cent. in crude fat or 1.0 per cent. in crude protein or deficient in both crude fat and crude protein are printed in bold face type.

Ingredients present and not guaranteed under the heading "Principal ingredients identified" are printed in bold face type. In poultry feeds the percentage of grit was determined; and where found present in quantities probably in excess of the fowl's needs, the percentage is printed in bold face type, unless the manufacturer has a higher percentage guaranteed.

Under the heading "Principal ingredients identified" in Table IV, it is not intended to assert that the materials noted are all that the samples contain but that they are the ones constituting the bulk of the feed and are present in such quantities as to be capable of identification.

In conjunction with Table IV, agents and consumers should also consult "Shipments removed from sale," page 19, and "Refunds," page 20, in deciding from whom to purchase.

SPECIAL NOTICE

Bulletin No. 216 contains a list of the brands of feeding stuffs which will be on sale in Indiana in 1918. Agents and consumers will secure the best results by using Bulletin No. 216 in conjunction with this bulletin.

ATTENTION, CONSUMERS, AGENTS AND DEALERS

In deciding on companies from which to purchase and represent, study closely the details of inspection in Table IV, page 27, and purchase from and represent companies which ship feed properly labeled and up to guarantee; when for any reason refund is received, notify this department promptly. Dealers who have sold any deficient feed and received refund must file receipts showing payment of proper amount to such customers. When car lots or appreciable amounts of feed are received, keep all bills, way bills and correspondence; also notify the State Chemist of arrival and probable time of distribution. No excuse will be accepted from agents or dealers who persist in representing companies which ship deficient, adulterated or unlabeled feed.

Fractional carloads will not be shipped. Cooperate by ordering either full carloads or place your order in advance, thus enabling the manufacturer to bunch two or more orders from the same section and make up a full car.

The facts are presented in this bulletin, and the best interests of purchasers of feed, as well as other citizens of the State, will be secured by co-operating with this department and patronizing firms which meet the requirements of the law in every particular.

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| WHEAT BRAN | | | | | | | | |
| Aetna Mills Company, The, Wellington, Kansas Wheat Bran ----- | 5095 | 7007 | John A. Nordmeyer, Morris----- | 10.4 | 3.5 | 4.1 | 14.0 | 15.8 |
| Akin-Erskine Milling Company, Evansville, Ind. Winter Wheat Bran ¹ ----- | 6031 | 5795 | Jeff Ray & Son, Rockport----- | 10.7 | 3.9 | 3.9 | 14.0 | 15.5 |
| Winter Wheat Bran ² ----- | 6031 | 6720 | R. P. Moore Milling Co., Princeton ----- | 8.7 | 3.9 | 4.0 | 14.0 | 15.2 |
| Akron Milling Company, The, Akron, Ind. Wheat Bran ----- | 3597 | 7186 | Manufacturer ----- | 10.4 | 3.5 | 3.9 | 14.0 | 14.9 |
| Wheat Bran ----- | 3597 | 8055 | Manufacturer ----- | 8.1 | 3.5 | 3.6 | 14.0 | 15.5 |
| Amboy Milling Company, Amboy, Ind. Wheat Bran ----- | 6087 | 6871 | Manufacturer ----- | 9.8 | 3.5 | 4.0 | 13.0 | 16.1 |
| Angola Flouring Mills, Angola, Ind. Angola Flouring Mills Wheat Bran----- | 1098 | 7388 | Manufacturer ----- | 10.6 | 3.8 | 3.8 | 14.0 | 15.6 |
| Angola Flouring Mills Wheat Bran----- | 1098 | 8262 | Manufacturer ----- | 8.1 | 3.8 | 3.6 | 14.0 | 15.1 |
| Ashley-Hudson Milling & Grain Company, Ashley, Ind. Ashley-Hudson Wheat Bran ----- | 3144 | 7386 | Ashley-Hudson Milling Co. ----- | 10.1 | 3.8 | 4.0 | 14.0 | 15.9 |
| †Ashley-Hudson Wheat Bran ----- | 3144 | 8250 | Frank Stroock, Hudson ----- | 8.0 | 3.8 | 4.6 | 14.0 | 17.7 |
| Ashley-Hudson Wheat Bran ----- | 3144 | 8253 | Kerlin & Hammond, Ashley----- | 8.6 | 3.8 | 4.0 | 14.0 | 16.2 |
| Bay State Milling Company, Winona, Minn. "Winona" Coarse Wheat Bran ----- | 8193 | 7366 | Luebecke Bros., Crown Point----- | 10.2 | 4.5 | 5.0 | 15.0 | 15.4 |
| Berlein Mills, Angola, R. R., Ind. Wheat Bran ----- | 7738 | 8258 | Manufacturer ----- | 8.9 | 3.0 | 4.0 | 14.0 | 15.4 |
| Burrell & Morgan, Elkhart, Ind. Bran ----- | 253 | 6496 | Manufacturer ----- | 9.9 | 3.8 | 3.8 | 14.0 | 14.0 |
| Bran ----- | 253 | 7548 | Manufacturer ----- | 9.0 | 3.8 | 3.6 | 14.0 | 14.8 |
| Butler Milling Company, Butler, Ind. Butler Milling Co's Wheat Bran----- | 1029 | 7402 | Manufacturer ----- | 9.8 | 3.8 | 4.1 | 14.0 | 15.3 |
| Butler Milling Co's Wheat Bran----- | 1029 | 8236 | Manufacturer ----- | 8.9 | 3.8 | 3.9 | 14.0 | 15.6 |
| Cauble, O. L., Pekin, Ind. Wheat Bran ----- | 1018 | 5898 | Manufacturer ----- | 9.5 | 3.8 | 3.8 | 14.0 | 15.9 |
| Wheat Bran ----- | 1018 | 8030 | Manufacturer ----- | 8.9 | 3.8 | 4.4 | 14.0 | 15.3 |
| Cauble & Dunlevy, Henryville, Ind. Bran ----- | 4295 | 5869 | Manufacturer ----- | 9.5 | 3.5 | 3.6 | 14.0 | 14.5 |
| Champion Roller Milling Company, Richmond, Ind. Wheat Bran ----- | 2496 | 6250 | Manufacturer ----- | 10.0 | 3.5 | 4.1 | 14.8 | 14.4 |
| Wheat Bran ----- | 2496 | 7954 | Manufacturer ----- | 8.9 | 3.5 | 3.9 | 14.8 | 14.9 |
| City Milling Company, Kendallville, Ind. Wheat Bran ----- | 6273 | 6511 | Manufacturer ----- | 11.0 | 3.8 | 4.9 | 14.0 | 15.4 |
| Wheat Bran ----- | 6273 | 7511 | Manufacturer ----- | 9.5 | 3.8 | 3.8 | 14.0 | 16.5 |
| City Mills, South Whitley, Ind. Wheat Bran ----- | 6105 | 7151 | Manufacturer ----- | 9.6 | 3.5 | 4.0 | 14.0 | 14.1 |
| Wheat Bran ----- | 6105 | 8074 | Manufacturer ----- | 8.1 | 3.5 | 3.9 | 14.0 | 15.8 |
| Claypole, Geo. M., Sardinia, Ind. Geo. M. Claypole's Wheat Bran----- | 2144 | 5457 | Manufacturer ----- | 10.1 | 3.2 | 3.8 | 14.0 | 15.0 |
| Cook Milling Company, Richmond, R. R. No. 4, Ind. Wheat Bran ----- | 4796 | 7911 | Manufacturer ----- | 9.0 | 3.4 | 3.4 | 12.0 | 15.0 |

†† Not tagged. Labels furnished.

¹ Screenings present, 1200 lbs. removed from sale.² Screenings present, 1 ⁷/₁₀ tons removed from sale

Relabeled No. 7729

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Coppes Bros. & Zook, Nappanee, Ind. | | | | | | | | |
| Bran ----- | 5628 | 5953 | Beach & Simmers, Albany----- | 9.0 | 3.6 | 3.8 | 13.5 | 13.6 |
| Bran ----- | 5628 | 6491 | Manufacturer ----- | 9.9 | 3.6 | 4.4 | 13.5 | 15.1 |
| Bran ----- | 5628 | 8051 | Kraus & Apfelbaum, Pierceton----- | 8.1 | 3.6 | 3.7 | 13.5 | 15.2 |
| Bran ----- | 5628 | 8306 | Manufacturer ----- | 9.4 | 3.6 | 3.6 | 13.5 | 15.0 |
| Daniels & Pickering Company, Middletown, Ind. | | | | | | | | |
| Daniels Wheat Bran ----- | 104 | 6283 | J. M. Walker & Son, Middle- town ----- | 9.5 | 3.2 | 4.3 | 12.0 | 15.8 |
| Deutsch & Sickert Company, Milwaukee, Wis. | | | | | | | | |
| Coarse Wheat Bran ³ ----- | 5889 | 7531 | Yorktown Lumber Co., York- town ----- | 8.9 | 4.0 | 5.6 | 15.0 | 14.4 |
| Duglay & Jones, Churubuseo, Ind. | | | | | | | | |
| Wheat Bran ----- | 7469 | 7408 | Manufacturer ----- | 9.3 | 3.0 | 4.1 | 13.0 | 15.6 |
| Dunlap Grain Company, The J. M., Franklin, Ind. | | | | | | | | |
| "Dairy" Wheat Bran ----- | 8369 | 7762 | Manufacturer ----- | 8.9 | 3.8 | 4.4 | 14.0 | 16.3 |
| Farmers Milling & Elevator Company, Veedersburg, Ind. | | | | | | | | |
| Wheat Bran ----- | 5000 | 6052 | Manufacturer ----- | 10.1 | 3.0 | 4.4 | 12.0 | 15.3 |
| Fyke Milling Company, Lagrange, Ind. | | | | | | | | |
| Wheat Bran ⁴ ----- | 1814 | 7306 | Manufacturer ----- | 8.7 | 3.8 | 3.8 | 14.0 | 13.9 |
| Geneva Milling & Grain Company, Geneva, Ind. | | | | | | | | |
| Miller's Wheat Bran ----- | 3109 | 7094 | Manufacturer ----- | 10.1 | 3.3 | 3.6 | 14.0 | 16.4 |
| Gerald County Milling Company, Westington Springs, S. Dakota | | | | | | | | |
| Dakota Cream Bran ⁵ ----- | --- | 5487 | Richard Hagans, Greenfield----- | 9.1 | --- | 4.9 | --- | 14.7 |
| Globe Mills, The, Fort Wayne, Ind. | | | | | | | | |
| The Globe Mills Wheat Bran ----- | 425 | 5518 | Manufacturer ----- | 8.6 | 3.8 | 3.8 | 14.0 | 15.1 |
| The Globe Mills Wheat Bran ----- | 425 | 8195 | Manufacturer ----- | 9.3 | 3.8 | 3.8 | 14.0 | 15.8 |
| Green Bros. & Oldfather, Warsaw, Ind. | | | | | | | | |
| Wheat Bran ⁶ ----- | 7919 | 7169 | Manufacturer ----- | 9.3 | 3.5 | 4.0 | 14.0 | 15.1 |
| Wheat Bran ----- | 7919 | 8064 | Manufacturer ----- | 8.3 | 3.5 | 3.9 | 14.0 | 16.3 |
| Greenfield Milling Company, Greenfield, Ind. | | | | | | | | |
| Bran ----- | 4469 | 6555 | Manufacturer ----- | 9.1 | 3.0 | 3.7 | 15.0 | 19.2 |
| Hall Milling Company, W. C., Brazil, Ind. | | | | | | | | |
| Hall's Wheat Bran ----- | 412 | 6662 | Manufacturer ----- | 10.2 | 3.8 | 4.4 | 14.0 | 15.8 |
| Hampton, W. D., Worthington, Ind. | | | | | | | | |
| Wheat Bran ----- | 1124 | 7177 | Manufacturer ----- | 10.7 | 3.8 | 4.2 | 14.0 | 17.8 |
| Huntington Mill Company, Huntington, Ind. | | | | | | | | |
| Bran ----- | 491 | 6586 | Manufacturer ----- | 8.7 | 3.6 | 3.7 | 14.2 | 14.2 |
| Bran ----- | 491 | 7594 | Manufacturer ----- | 8.1 | 3.6 | 3.8 | 14.2 | 16.5 |
| Hunter-Robinson-Wenz Milling Company, St. Louis, Mo. | | | | | | | | |
| *Dreadnaught Pure Extra Coarse Wheat Bran ----- | --- | 6966 | Chas. Rigney, Orleans ----- | 10.0 | --- | 4.4 | --- | 15.9 |
| *Dreadnaught Pure Extra Coarse Wheat Bran ----- | --- | 6967 | F. H. Turner & Sons, Lost River | 10.0 | --- | 4.7 | --- | 16.2 |

^{*} Not tagged³ Screenings present⁴ Screenings present⁵ Not tagged. Screenings present. Returned⁶ Screenings and chaff present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Igleheart Bros., Evansville, Ind. Pure Wheat Bran ----- | 5771 | 7896 | P. Reising & Sons, Poseyville--- | 8.6 | 4.0 | 3.8 | 14.5 | 16.0 |
| Iroquois Roller Mills, Rensselaer, Ind. Wheat Bran ----- | 6139 | 6951 | Manufacturer ----- | 9.1 | 3.0 | 4.3 | 13.0 | 13.9 |
| Katterjohn, A. F., Lynnville, Ind. A. F. Katterjohn's Wheat Bran----- | 487 | 6929 | Manufacturer ----- | 9.4 | 3.7 | 3.5 | 14.0 | 14.9 |
| Kehler Flour Mills Company, St. Louis, Mo. †Palace Bran ----- | 5808 | 6766 | Casper Fohl & Son, Cedar Grove ----- | 9.7 | 4.0 | 4.6 | 14.5 | 15.7 |
| Kendall, Dor Cuy, Williamsburg, Ind. Cuy Kendall Wheat Bran ----- | 362 | 7900 | Williamsburg Flour Mills, Williamsburg ----- | 9.1 | 3.8 | 3.8 | 14.0 | 14.9 |
| Kennedy Milling Company, G. W., Shelbyville, Ind. Kennedy's Winter Wheat Bran----- | 8201 | 7863 | Manufacturer ----- | 8.1 | 3.5 | 3.7 | 16.0 | 17.0 |
| Lawrenceburg Roller Mills Company, Lawrenceburg, Ind. Snowflake Bran ----- | 3936 | 5405 | Geo. Niemeyer & Son, Dillsboro- | 9.6 | 3.8 | 3.9 | 14.2 | 14.0 |
| Snowflake Bran ----- | 3936 | 6551 | Richard Hagans, Greenfield ---- | 9.9 | 3.8 | 3.8 | 14.2 | 14.5 |
| Snowflake Bran ----- | 3936 | 7703 | C. W. Curtis, Aurora ----- | 9.2 | 3.8 | 3.8 | 14.2 | 14.7 |
| Golden Bull Bran ----- | 7110 | 5555 | King Grain Co., Wabash----- | 10.9 | 2.0 | 4.2 | 15.5 | 15.8 |
| Golden Bull Bran ----- | 7110 | 7060 | City Mills, Rising Sun ----- | 10.2 | 2.0 | 4.1 | 15.5 | 14.9 |
| Leesburg Grain & Milling Company, The, Leesburg, Ind. Wheat Bran ----- | 305 | 5554 | W. H. McCarty, Wabash ----- | 9.7 | 3.8 | 4.1 | 14.0 | 14.6 |
| Wheat Bran ----- | 305 | 7266 | Manufacturer ----- | 9.3 | 3.8 | 4.2 | 14.0 | 14.0 |
| Lingeman, Adams & Company, Brownsburg, Ind. Bran ----- | 3320 | 6445 | Manufacturer ----- | 10.2 | 3.8 | 4.0 | 14.0 | 15.1 |
| Listman Mill Company, La Crosse, Wis. Elmco Bran ----- | 3368 | 6508 | Williamsport Grain Co., Williamsport ----- | 9.3 | 4.1 | 4.7 | 16.6 | 15.5 |
| Little Crow Milling Company, Warsaw, Ind. Little Crow Wheat Bran ----- | 360 | 8058 | Manufacturer ----- | 8.4 | 3.8 | 3.8 | 14.0 | 15.8 |
| Lynn Milling Company, The, Lynn, Ind. Wheat Bran ----- | 6233 | 7017 | Lynn City Mills, Lynn ----- | 10.7 | 3.5 | 4.4 | 13.5 | 14.1 |
| Maegerlein, E. S., Patricksburg, Ind. Bran ----- | 8103 | 6206 | Manufacturer ----- | 9.4 | 3.0 | 4.6 | 13.0 | 16.3 |
| Bran ----- | 8103 | 7136 | Manufacturer ----- | 9.7 | 3.0 | 3.6 | 13.0 | 16.9 |
| Maegerlein Roller Mills, Arthur, Clay City, Ind. Bran ⁷ ----- | 3507 | 7467 | Manufacturer ----- | 8.8 | 3.0 | 4.3 | 13.0 | 15.6 |
| Martin & Martin, New Castle, Ind. Martin & Martin's Wheat Bran----- | 3150 | 6504 | Manufacturer ----- | 10.0 | 3.2 | 4.2 | 12.0 | 15.9 |
| Maumee Valley Mills, New Haven, Ind. Bran ----- | 6896 | 0030 | Manufacturer ----- | 9.3 | 3.5 | 3.3 | 14.0 | 13.5 |
| Bran ----- | 6896 | 8174 | Manufacturer ----- | 8.8 | 3.5 | 3.5 | 14.0 | 15.8 |
| †Bran ----- | 6896 | 8196 | DeBolt & Niswonger, Monroeville ----- | 8.6 | 3.5 | 3.4 | 14.0 | 16.1 |
| Milan Milling Company, Milan, Ind. Wheat Bran ----- | 3315 | 7702 | Manufacturer ----- | 9.8 | 3.7 | 3.8 | 14.0 | 14.0 |
| Milford Grain & Milling Company, Milford, Ind. Wheat Bran ----- | 8479 | 8267 | Manufacturer ----- | 7.7 | 3.0 | 3.9 | 14.0 | 16.4 |

* Not tagged

†† Not tagged. Labels furnished

⁷ Screenings present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Monarch Milling Company, The, Hutchinson, Kansas Winter Wheat Bran ----- | 8742 | 7823 | Chas. Hartman, Evansville ---- | 8.5 | 3.0 | 4.1 | 16.0 | 16.8 |
| Moscow Roller Mills, Moscow, Ind. Wheat Bran ----- | 1634 | 7867 | Manufacturer ----- | 9.5 | 3.7 | 3.7 | 14.1 | 17.2 |
| Wheat Bran ----- | 1634 | 7874 | Manufacturer ----- | 9.3 | 3.7 | 3.6 | 14.1 | 16.6 |
| Myers & Son, Joseph H., Chili, Ind. Bran ----- | 3326 | 6614 | Manufacturer ----- | 9.4 | 3.0 | 3.9 | 16.0 | 14.1 |
| Bran ----- | 3326 | 7407 | J. L. & J. M. Myers, Chili----- | 10.0 | 3.0 | 3.9 | 16.0 | 15.4 |
| Naber & Company, Chas. F., Alexandria, Ind. Nabers Bran ----- | 7197 | 6064 | Manufacturer ----- | 10.7 | 3.3 | 3.5 | 14.0 | 14.8 |
| Nabers Bran ----- | 7197 | 7578 | Manufacturer ----- | 8.6 | 3.3 | 3.2 | 14.0 | 16.1 |
| Nodine, W. J., Waterloo, Ind. Wheat Bran ----- | 2773 | 7409 | Manufacturer ----- | 10.3 | 3.0 | 3.9 | 13.0 | 14.1 |
| Wheat Bran ----- | 2773 | 8242 | Manufacturer ----- | 9.5 | 3.0 | 3.8 | 13.0 | 14.8 |
| Northwestern Consolidated Milling Company, The, Minneapolis, Minn. Pure Wheat Bran ----- | 2825 | 6392 | Ed. Behnke & Son, Gary----- | 10.0 | 4.0 | 4.9 | 14.5 | 14.7 |
| Osakis Milling Company, Osakis, Minn. Fancy Bran ----- | 3194 | 7558 | Louis P. Plotnicki, South Bend-- | 8.0 | 4.0 | 5.4 | 14.0 | 15.0 |
| Plainville Milling Company, Plainville, Ind. Wheat Bran ----- | 4372 | 7718 | Flem Vanmeter, Jasonville ---- | 8.7 | 3.8 | 3.6 | 14.2 | 16.0 |
| Pymont Mills Company, Pymont, Ind. Pymont Bran ----- | 7157 | 6216 | Manufacturer ----- | 9.1 | 3.0 | 3.2 | 14.0 | 15.9 |
| Ray & Rice, Camden, Ind. Wheat Bran ----- | 5342 | 5938 | Manufacturer ----- | 9.2 | 3.3 | 3.6 | 14.0 | 13.9 |
| Richmond Roller Mills, Richmond, Ind. The Richmond Roller Mills Wheat Bran ----- | 482 | 6247 | Manufacturer ----- | 9.9 | 3.2 | 4.4 | 12.0 | 15.0 |
| The Richmond Roller Mills Wheat Bran ----- | 482 | 7952 | Manufacturer ----- | 8.5 | 3.2 | 4.2 | 12.0 | 14.7 |
| Rittenhouse, F. S., Liberty Mills, Ind. Liberty Bird Bran ----- | 3043 | 8110 | Manufacturer ----- | 9.0 | 2.5 | 3.8 | 12.5 | 15.9 |
| Roper & Brown, Hobart, Ind. Hobart Wheat Bran ----- | 4178 | 6454 | Manufacturer ----- | 10.4 | 3.5 | 3.8 | 14.0 | 14.5 |
| Russell-Miller Milling Company, Fargo, N. Dakota Bran ----- | 3584 | 7022 | Goodrich Bros. Hay & Grain Co., Winchester ----- | 8.8 | 4.0 | 4.3 | 13.0 | 14.8 |
| Schilt, W. F., Bremen, Ind. Wheat Bran ----- | 7971 | 6531 | Manufacturer ----- | 9.3 | 3.7 | 4.0 | 14.0 | 15.2 |
| Wheat Bran ----- | 7971 | 8310 | Manufacturer ----- | 9.6 | 3.7 | 3.8 | 14.0 | 15.4 |
| Schultz, Baujan & Company, Beardstown, Ill. Sunbeam Bran ----- | 6013 | 6641 | Prater-Mottitt Co., Terre Haute | 10.3 | 3.5 | 5.0 | 14.0 | 15.0 |
| Sunbeam Bran ----- | 6013 | 7001 | Batesville Roller Mills, Batesville | 10.2 | 3.5 | 5.0 | 14.0 | 15.3 |
| Seidel, W. T., Orland, Ind. Wheat Bran ----- | 6372 | 6074 | Orland Milling Co., Orland ---- | 11.1 | 3.0 | 3.6 | 13.0 | 13.3 |
| Shine & Company, John H., New Albany, Ind. Wheat Bran ----- | 2086 | 8317 | C. H. Ashworth, Crandall----- | 8.2 | 3.8 | 3.6 | 14.0 | 16.2 |

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|-----------------------------------|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Sims Milling Company, Frankfort, Ind. | | | | | | | | |
| Wheat Bran ----- | 6303 | 6432 | Manufacturer ----- | 9.4 | 3.7 | 4.1 | 14.0 | 14.5 |
| Wheat Bran ----- | 6303 | 7492 | Manufacturer ----- | 9.2 | 3.7 | 4.2 | 14.0 | 15.0 |
| Southwestern Milling Company, Inc., The, Kansas City, Mo. | | | | | | | | |
| Pure Wheat Bran ----- | 7952 | 6508 | Geo. Steckley, Kendallville ----- | 10.4 | 4.0 | 4.8 | 14.5 | 16.0 |
| Star Milling Company, The, Aurora, Ind. | | | | | | | | |
| Bran ----- | 1038 | 5451 | Manufacturer ----- | 8.5 | 3.8 | 3.9 | 14.2 | 16.8 |
| Star Milling Company, Shoals, Ind. | | | | | | | | |
| Star Wheat Bran ----- | 502 | 7450 | Manufacturer ----- | 9.9 | 3.8 | 3.9 | 14.0 | 15.0 |
| St. Joe Milling Company, St. Joe, Ind. | | | | | | | | |
| St. Joe's Wheat Bran ----- | 5553 | 8227 | Manufacturer ----- | 9.1 | 3.4 | 3.7 | 14.0 | 15.7 |
| Street Milling Company, J., Laporte, Ind. | | | | | | | | |
| Wheat Bran ----- | 762 | 6347 | Manufacturer ----- | 9.5 | 3.8 | 4.1 | 14.0 | 13.8 |
| Suckow Company, Franklin, Ind. | | | | | | | | |
| "Perfection" Wheat Bran ----- | 5947 | 6565 | C. B. Cook Co., Greenwood ----- | 8.7 | 3.8 | 4.6 | 14.0 | 15.5 |
| "Perfection" Wheat Bran ----- | 5947 | 7748 | Manufacturer ----- | 9.3 | 3.8 | 4.4 | 14.0 | 16.0 |
| Thornburg Milling & Elevator Company, Martinsville, Ind. | | | | | | | | |
| Bran ----- | 656 | 7675 | Manufacturer ----- | 9.1 | 3.2 | 3.9 | 14.0 | 14.5 |
| Timbrook & Hursh, Auburn, Ind. | | | | | | | | |
| Auburn Roller Mills Wheat Bran ----- | 7031 | 6575 | H. W. Timbrook, Auburn ----- | 8.7 | 3.8 | 4.3 | 14.0 | 13.9 |
| Auburn Roller Mills Wheat Bran ----- | 7031 | 7397 | Manufacturer ----- | 9.8 | 3.8 | 4.1 | 14.0 | 15.8 |
| Auburn Roller Mills Wheat Bran ----- | 7031 | 8235 | H. W. Timbrook, Auburn ----- | 9.1 | 3.8 | 3.9 | 14.0 | 15.9 |
| Tresselt & Sons, C., Fort Wayne, Ind. | | | | | | | | |
| Wheat Bran ----- | 409 | 5532 | Manufacturers ----- | 8.8 | 3.8 | 3.9 | 14.0 | 15.1 |
| Tuttle & Company, R., Columbia City, Ind. | | | | | | | | |
| Perfection Bran ----- | 817 | 6693 | Manufacturer ----- | 9.3 | 3.8 | 3.5 | 14.0 | 15.0 |
| Perfection Bran ----- | 817 | 7404 | Gandy Grain Co., Churubusco ----- | 9.8 | 3.8 | 3.8 | 14.0 | 15.8 |
| Perfection Bran ----- | 817 | 8057 | O. Gandy & Co., Mentone ----- | 8.4 | 3.8 | 3.8 | 14.0 | 15.6 |
| Ulrich & Son, Levi, Greensboro, Ind. | | | | | | | | |
| Bran ----- | 5397 | 7985 | Manufacturer ----- | 10.3 | 3.5 | 3.9 | 12.5 | 18.1 |
| Valentine & Valentine, Franklin, Ind. | | | | | | | | |
| Wheat Bran ----- | 933 | 7752 | Manufacturer ----- | 8.8 | 3.8 | 4.2 | 14.0 | 16.2 |
| Wakarusa Milling Company, Wakarusa, Ind. | | | | | | | | |
| Wakarusa Wheat Bran ----- | 1249 | 6533 | Manufacturer ----- | 9.6 | 3.8 | 3.9 | 14.0 | 14.3 |
| Wakarusa Wheat Bran ----- | 1249 | 8308 | Manufacturer ----- | 10.0 | 3.8 | 4.0 | 14.0 | 15.7 |
| Witmer Grain Company, Grabill, Ind. | | | | | | | | |
| Wheat Bran ----- | 2940 | 8229 | Manufacturer ----- | 8.9 | 3.5 | 3.9 | 14.0 | 16.5 |
| Woodburn Elevator & Milling Company, The, Woodburn, Ind. | | | | | | | | |
| Wheat Bran ----- | 4000 | 6145 | Manufacturer ----- | 9.1 | 3.0 | 3.1 | 14.0 | 15.0 |
| Ziliak & Schaefer Milling Company, Haubstadt, Ind. | | | | | | | | |
| Pure Wheat Bran ----- | 7670 | 5653 | Manufacturer ----- | 9.3 | 4.0 | 3.6 | 14.0 | 16.1 |
| Pure Wheat Bran ----- | 7670 | 6748 | Manufacturer ----- | 10.2 | 4.0 | 4.0 | 14.0 | 14.8 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| WHEAT BRAN AND SCREENINGS | | | | | | | | |
| Acme-Evans Company, Indianapolis, Ind. | | | | | | | | |
| Acme Bran and Screenings ----- | 7159 | 5958 | Portland Equity Exchange, Portland ----- | 7.8 | 3.5 | 3.6 | 15.5 | 14.9 |
| Acme Bran and Screenings ----- | 7159 | 7140 | Farmers Supply Co., Spencer--- | 9.5 | 3.5 | 3.5 | 15.5 | 15.6 |
| Acme Bran and Screenings ----- | 7159 | 7340 | Thorntown Grain Co., Thorntown ----- | 10.7 | 3.5 | 4.0 | 15.5 | 15.0 |
| Acme Bran and Screenings ----- | 7159 | 8132 | Wolfram Grain Co., Brownsburg | 8.4 | 3.5 | 4.0 | 15.5 | 16.1 |
| Akin-Erskine Milling Company, Evansville, Ind. | | | | | | | | |
| Winter Wheat Bran & Mill Run Wheat Screening ----- | 7729 | 6900 | Chas. W. Brizius Co., Newburgh | 9.2 | 3.9 | 4.0 | 14.0 | 15.0 |
| Winter Wheat Bran & Mill Run Wheat Screening ----- | 7729 | 7833 | Manufacturers ----- | 8.9 | 3.9 | 3.7 | 14.0 | 15.8 |
| Ashbrook Company, The J. S., Mattoon, Ill. | | | | | | | | |
| Wheat Bran with Ground Screenings ⁸ | 8530 | 7462 | I. Bunch, Linton ----- | 9.2 | 4.0 | 4.2 | 13.0 | 17.6 |
| Atkinson Milling Company, Minneapolis, Minn. | | | | | | | | |
| †Wheat Bran with Screenings ----- | 8199 | 5360 | Hurst & Co., Indianapolis----- | 9.0 | 4.0 | 4.6 | 13.0 | 15.8 |
| Badenoch Company, J. J., Chicago, Ill. | | | | | | | | |
| J. J. Badenoch Co's Wheat Bran with Ground Screenings not exceeding Mill Run ⁹ ----- | 6219 | 7525 | J. C. Barrett, South Bend----- | 9.1 | 4.0 | 4.4 | 14.5 | 17.2 |
| J. J. Badenoch Co's Wheat Bran with Ground Screenings not exceeding Mill Run ¹⁰ ----- | 6219 | 7562 | Cash Flour & Feed Store, South Bend ----- | 8.9 | 4.0 | 4.2 | 14.5 | 16.4 |
| Bartlett Company, The J. E., Jackson, Mich. | | | | | | | | |
| Wheat Bran with Screenings----- | 6813 | 6513 | J. Keller & Co., LaOtto ----- | 10.2 | 3.0 | 5.2 | 14.0 | 14.8 |
| Bernet, Craft & Kauffman Milling Company, St. Louis, Mo. | | | | | | | | |
| Mt. Carmel Bran and Screenings----- | 5518 | 6948 | E. H. Marlott, Attica ----- | 8.7 | 3.5 | 4.4 | 14.3 | 16.5 |
| Mt. Carmel Bran and Screenings----- | 5518 | 7732 | Crabbs Reynolds Taylor Co., Crawfordsville ----- | 8.3 | 3.5 | 4.0 | 14.3 | 16.2 |
| Big Diamond Mills Company, Minneapolis, Minn. | | | | | | | | |
| "Big Diamond Bran" and Screenings.. | 7069 | 5710 | J. H. Menke, Richmond ----- | 9.5 | 4.0 | 4.7 | 14.0 | 14.6 |
| "Big Diamond Bran" and Screenings.. | 7069 | 6249 | J. H. Menke, Richmond ----- | 9.6 | 4.0 | 4.9 | 14.0 | 14.4 |
| "Big Diamond Bran" and Screenings.. | 7069 | 7910 | J. H. Menke, Richmond ----- | 8.6 | 4.0 | 5.1 | 14.0 | 14.7 |
| Billman & Sons, C. H., Shelbyville, Ind. | | | | | | | | |
| Shelby Wheat Bran and Unground Wheat Screenings ----- | 6546 | 6980 | Manufacturers ----- | 9.6 | 3.0 | 3.8 | 14.0 | 16.3 |
| Boonville Milling Company, Boonville, Ind. | | | | | | | | |
| Wheat Bran & Screenings ¹¹ ----- | 2842 | 6895 | Manufacturer ----- | 8.8 | 3.7 | 4.0 | 14.0 | 14.4 |
| Wheat Bran & Screenings ----- | 2842 | 7883 | Manufacturer ----- | 9.1 | 3.7 | 3.9 | 14.0 | 14.9 |
| Bridgeton Milling Company, Bridgeton, Ind. | | | | | | | | |
| Bran & Ground Screenings ----- | 5177 | 7627 | Manufacturer ----- | 10.2 | 3.8 | 3.6 | 13.0 | 14.8 |
| Brook Flour & Feed Mill, The, Brook, Ind. | | | | | | | | |
| ††Rising Sun Bran and Ground Screen- ings ----- | 8937 | 7777 | G. E. Vest, Brook ----- | 9.6 | 3.0 | 4.1 | 12.0 | 14.7 |

†† Not tagged. Labels furnished

⁸ Not tagged. Labels furnished. Middlings present⁹ Withdrawn. Middlings present¹⁰ Not tagged. Middlings present. Withdrawn¹¹ Corn bran present. Used by owner

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Brose, Geo., Evansville, Ind. Wheat Bran & Screenings ----- | 2942 | 7834 | Manufacturer ----- | 9.0 | 3.2 | 3.8 | 13.5 | 14.8 |
| Brose & Arnold, Evansville, Ind. Bran and Screenings ----- | 2257 | 7835 | Manufacturer ----- | 9.4 | 3.7 | 4.2 | 14.0 | 16.4 |
| Burge-Thomas Milling Company, Marion, Ind. Wheat Bran and Wheat Screenings---- | 6440 | 6365 | Thomas Milling Co., Marion---- | 9.6 | 3.1 | 3.5 | 14.0 | 14.7 |
| Butler & Company, Edw. J., Chicago, Ill. †Wheat Bran and Screenings ----- | 8346 | 5951 | Crabbs Reynolds Taylor Co., Reynolds ----- | 9.2 | 4.0 | 4.5 | 14.0 | 15.2 |
| Chicago Heights Oil M'fg. Company, Chicago, Ill. "Prize" Wheat Bran and Screenings---- | 7005 | 6072 | Sheldon & Wiler, Orland ----- | 10.6 | 3.5 | 4.4 | 14.0 | 15.4 |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. Mixed Feed ----- | 2468 | 7736 | Crabbs Reynolds Taylor Co., Crawfordsville ----- | 8.1 | 3.7 | 4.0 | 14.0 | 14.8 |
| Deutsch & Sickert Company, Milwaukee, Wis. Wheat Bran with Screenings ----- | 7259 | 7735 | Crabbs Reynolds Taylor Co., Crawfordsville ----- | 8.3 | 4.0 | 5.5 | 13.0 | 16.4 |
| Dickinson Company, The Albert, Chicago, Ill. Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 5841 | 6353 | McMahan Bros., Valparaiso---- | 8.9 | 4.0 | 5.1 | 14.5 | 15.4 |
| Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 5841 | 7324 | Farmers Elevator Co., Monticello ----- | 9.3 | 4.0 | 5.2 | 14.5 | 15.7 |
| Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 5841 | 7391 | R. C. McNaughton, Ray ----- | 10.1 | 4.0 | 4.6 | 14.5 | 14.7 |
| Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 5841 | 7629 | Phillips & Ross Grain Co., Rosedale ----- | 10.0 | 4.0 | 5.0 | 14.5 | 14.0 |
| Donmeyer Gardner Company, Peoria, Ill. Wheat Bran with Screenings not to Exceed Mill Run ¹² ----- | 6208 | 7203 | Crabbs Reynolds Taylor Co., Lafayette ----- | 9.5 | 4.0 | 4.4 | 14.0 | 16.2 |
| *Wheat Bran with Screenings not to Exceed Mill Run ----- | --- | 8294 | Montmorenci Elevator Co., Montmorenci ----- | 9.2 | --- | 4.6 | --- | 15.6 |
| Eagle Roller Mill Company, New Ulm, Minn. Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7105 | 6234 | J. C. Phillips, Star City----- | 9.9 | 3.4 | 4.7 | 14.0 | 15.4 |
| Eckhart Milling Company, B. A., Chicago, Ill. Bran and Screenings ----- | 6194 | 7241 | W. C. Hall Milling Co., Brazil-- | 9.5 | 4.0 | 4.9 | 14.0 | 14.5 |
| Bran and Screenings ----- | 6194 | 7290 | Wolfe & Bevington, Shipshevana ----- | 8.5 | 4.0 | 4.1 | 14.0 | 14.8 |
| Edinger & Company, Louisville, Ky. Wheat Bran & Wheat Screenings----- | 7205 | 5836 | C. H. Ashworth, Crandall ----- | 10.5 | 4.0 | 4.2 | 14.5 | 14.9 |
| Wheat Bran & Wheat Screenings----- | 7205 | 6734 | O. L. Cauble, Pekin ----- | 10.1 | 4.0 | 4.6 | 14.5 | 17.0 |
| Wheat Bran & Wheat Screenings----- | 7205 | 8032 | Farmers Feed Store, Borden---- | 8.8 | 4.0 | 4.3 | 14.5 | 16.1 |
| Wheat Bran & Wheat Screenings----- | 7205 | 8365 | Marengo Milling Co., Marengo-- | 8.2 | 4.0 | 4.4 | 14.5 | 16.5 |
| Emison, J. & S., Vincennes, Ind. Mixed Feed ----- | 4237 | 8006 | Chas. H. Steel, Princeton----- | 8.0 | 3.0 | 3.5 | 14.0 | 14.2 |
| Mixed Feed ----- | 4237 | 8012 | Salem Milling Co., Salem----- | 8.0 | 3.0 | 3.7 | 14.0 | 14.7 |
| Empire Milling Company, Minneapolis, Minn. Empire Milling Co., Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7393 | 6263 | Hamlet Grain Co., Hamlet----- | 9.1 | 4.0 | 4.9 | 14.0 | 14.8 |

• Not tagged

†† Not tagged. Labels furnished

¹² Wheat middlings present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Everett-Aughenbaugh & Company, Waseca, Minn. E-A-CO Wheat Bran with Ground Screenings ----- | 6024 | 5377 | Vandalia Elevator Co., Colfax-- | 10.4 | 3.0 | 4.6 | 14.0 | 15.5 |
| E-A-CO Wheat Bran with Ground Screenings ----- | 6024 | 5485 | Crabbs Reynolds Taylor Co., Crawfordsville ----- | 10.9 | 3.0 | 4.7 | 14.0 | 15.3 |
| Feed Products Milling Company, Chicago, Ill. Wheat Bran with Ground Screenings Not Exceeding Mill Run ----- | 8625 | 7117 | W. J. Loy, Columbus ----- | 9.5 | 3.0 | 4.8 | 14.0 | 15.2 |
| Fuhrer-Ford Milling Company, Mt. Vernon, Ind. Wheat Bran and Screenings ----- | 2385 | 7894 | Fuhrer-Ford Milling Co., New Harmony ----- | 8.7 | 3.7 | 4.1 | 14.0 | 15.3 |
| Garland Milling Company, Greensburg, Ind. Garland Bran & Screenings ----- | 7279 | 6978 | Manufacturer ----- | 8.8 | 3.7 | 4.1 | 15.0 | 15.4 |
| Garland Bran & Screenings ----- | 7279 | 7315 | J. W. Linkhart & Son, North Vernon ----- | 9.8 | 3.7 | 4.0 | 15.0 | 15.9 |
| Garland Bran & Screenings ----- | 7279 | 7856 | Manufacturer ----- | 8.7 | 3.7 | 3.5 | 15.0 | 14.7 |
| Goshen Milling Company, Goshen, Ind. Mixed Feed ----- | 2335 | 6015 | Manufacturer ----- | 8.7 | 4.0 | 4.3 | 14.0 | 14.7 |
| Mixed Feed ----- | 2335 | 6521 | Manufacturer ----- | 10.8 | 4.0 | 4.4 | 14.0 | 14.7 |
| Mixed Feed ----- | 2335 | 8127 | Manufacturer ----- | 9.3 | 4.0 | 4.4 | 14.0 | 15.8 |
| Hales & Edwards Company, Chicago, Ill. Wheat Bran with Ground Screenings (not exceeding Mill Run) ----- | 7509 | 6859 | Hartman & Dotterer, Bluffton-- | 10.3 | 3.0 | 4.7 | 14.0 | 15.2 |
| Wheat Bran with Ground Screenings (not exceeding Mill Run) ----- | 7509 | 7240 | W. C. Hall Milling Co., Brazil-- | 9.3 | 3.0 | 4.7 | 14.0 | 14.8 |
| Haynes Milling Company, The, Portland, Ind. "Haynes Mixed Feed" ----- | 7893 | 5954 | Manufacturer ----- | 8.1 | 3.5 | 3.5 | 15.0 | 15.0 |
| Home Mill & Grain Company, Mt. Vernon, Ind. Mixed Feed ----- | 3237 | 6889 | Manufacturer ----- | 9.0 | 3.2 | 3.5 | 14.4 | 15.7 |
| Mixed Feed ----- | 3237 | 7975 | Manufacturer ----- | 8.6 | 3.2 | 3.7 | 14.4 | 16.2 |
| Mixed Feed ----- | 3237 | 7976 | Sunlight Milling Co., Mt. Vernon | 8.6 | 3.2 | 3.2 | 14.4 | 15.3 |
| Hornung, J. M., Greensburg, Ind. Wheat Bran & Screenings ----- | 2577 | 7872 | Manufacturer ----- | 8.5 | 3.7 | 3.7 | 14.1 | 15.6 |
| Hubbard Milling Company, Mankota, Minn. Flakey Bran & Ground Screenings---- | 5446 | 7011 | Berry Bros., Lynn ----- | 10.6 | 4.8 | 5.3 | 15.0 | 15.6 |
| Hunter-Robinson-Wenz Milling Company, St. Louis, Mo. †† Bran and Screenings ----- | 5219 | 6969 | C. F. Johnson & Son, Paoli---- | 9.0 | 4.0 | 4.6 | 14.5 | 16.1 |
| Bran and Screenings ----- | 5219 | 6971 | C. F. Johnson & Son, Paoli---- | 9.0 | 4.0 | 4.5 | 14.5 | 15.7 |
| Bran and Screenings ----- | 5219 | 7073 | Holton Milling Co., Holton---- | 10.5 | 4.0 | 4.0 | 14.5 | 16.0 |
| Kansas Flour Mills Company, The, Wichita, Kansas Wheat Bran & Screenings ----- | 7885 | 7003 | Putmann Hardware Co., New Point ----- | 10.3 | 4.2 | 4.7 | 14.7 | 15.6 |
| Kaw Milling Company, The, Topeka, Kansas Wheat Bran and Screenings ----- | 6702 | 6292 | Thos. C. Fisher, Anderson----- | 9.8 | 4.0 | 4.2 | 17.0 | 16.5 |
| Kaw Kaw Bran & Scourings ----- | 8305 | 6324 | A. C. Heitschmidt, Michigan City ----- | 9.2 | 3.5 | 4.2 | 15.5 | 16.5 |
| Kaw Kaw Bran & Scourings ----- | 8305 | 6876 | Clover Leaf Milling Co., Kokomo ----- | 9.1 | 3.5 | 4.1 | 15.5 | 16.3 |
| Kaw Kaw Bran & Scourings ----- | 8305 | 7514 | Sturgeon Grain & Coal Co., Muncie ----- | 9.4 | 3.5 | 4.0 | 15.5 | 16.7 |

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Keene, A. C., Elkhart, Ind. Wheat Bran & Ground Screenings..... | 7361 | 7551 | Manufacturer ----- | 10.6 | 3.5 | 3.7 | 13.5 | 14.4 |
| Kemper Mill & Elevator Company, Kansas City, Mo. Anchor Bran with Ground Screenings.. | 6030 | 5849 | M. Schuppert & Son, Depauw--- | 9.3 | 4.0 | 4.5 | 14.5 | 16.1 |
| Anchor Bran with Ground Screenings.. | 6030 | 7838 | Fisher Hay & Grain Co., Evansville ----- | 9.3 | 4.0 | 4.1 | 14.5 | 16.6 |
| Loughry Bros. Milling & Grain Company, Monticello, Ind. Loughry's Mixed Feed ----- | 1946 | 7329 | Manufacturer ----- | 11.3 | 3.7 | 4.1 | 14.0 | 14.0 |
| Louisville Milling Company, Louisville, Ky. Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 6175 | 5756 | Charlestown Milling Co., Charlestown ----- | 9.5 | 4.0 | 4.6 | 14.5 | 14.7 |
| Lyon & Greenleaf Company, Ligonier, Ind. Mixed Feed ----- | 8217 | 7296 | Middlebury Grain Co., Middlebury ----- | 9.7 | 3.8 | 4.1 | 14.0 | 17.1 |
| Mixed Feed ----- | 8217 | 7506 | Manufacturer ----- | 9.9 | 3.8 | 3.9 | 14.0 | 15.1 |
| Marshall Milling Company, Marshall, Minn. Wheat Bran with Screenings not ex- ceeding Mill Run ----- | 8627 | 7529 | Thosle Fisher, Anderson ----- | 8.6 | 4.0 | 5.2 | 14.5 | 15.4 |
| Mayflower Mills, Fort Wayne, Ind. Mayflower Bran and Screenings..... | 6715 | 6567 | Valentine & Valentine, Franklin | 9.6 | 3.8 | 4.8 | 14.0 | 15.4 |
| Mayflower Bran and Screenings..... | 6715 | 6863 | Finkle Milling Co., Warren ----- | 9.8 | 3.8 | 4.5 | 14.0 | 15.0 |
| Mayflower Bran and Screenings..... | 6715 | 8104 | Farmers Elevator Co., Laketon | 8.4 | 3.8 | 4.2 | 14.0 | 14.8 |
| Mosher & Company, A. B., Columbia City, Ind. ††Wheat Bran & Screenings ----- | 8481 | 6164 | J. L. Keisler & Sons, Columbia City ----- | 10.5 | 3.0 | 5.2 | 13.0 | 15.4 |
| McCoy & Garten, Indianapolis, Ind. ††Wheat Bran and Screenings..... | 5504 | 7760 | E. H. Heaton, Indianapolis..... | 9.2 | 4.0 | 4.0 | 14.0 | 17.4 |
| Wheat Bran and Screenings ----- | 5504 | 7869 | W. T. Boling, St. Paul..... | 9.0 | 4.0 | 4.2 | 14.0 | 17.2 |
| National Feed Company, St. Louis, Mo. Wheat Bran and Screenings ----- | 4659 | 6557 | Griffin & Bundy, Spiceland..... | 9.0 | 3.0 | 4.3 | 14.0 | 15.6 |
| New Prague Flouring Mill Company, New Prague, Minn. Seal of Minnesota Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7907 | 7276 | Cash Flour & Feed Store, South Bend ----- | 8.7 | 3.0 | 4.9 | 13.3 | 15.8 |
| Seal of Minnesota Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7907 | 7571 | Hoosier Wholesale Grocery Co., South Bend ----- | 8.7 | 3.0 | 5.2 | 13.3 | 15.4 |
| Seal of Minnesota Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7907 | 7774 | McCray Grain Co., Kentland.... | 9.3 | 3.0 | 5.5 | 13.3 | 15.6 |
| Noblesville Milling Company, Noblesville, Ind. N. M. Co's Wheat Bran & Screenings.. | 5252 | 5728 | A. Smith & Co., Sheridan..... | 7.8 | 3.7 | 4.3 | 14.5 | 18.6 |
| N. M. Co's Wheat Bran & Screenings.. | 5252 | 6231 | W. G. Sweet, Royal Center..... | 9.9 | 3.7 | 4.1 | 14.5 | 15.0 |
| N. M. Co's Wheat Bran & Screenings.. | 5252 | 7522 | C. H. Ellis, Muncie ----- | 9.0 | 3.7 | 4.5 | 14.5 | 15.4 |
| Norton & Company, Willis, Topeka, Kansas. ††Wheat Bran & Screenings ----- | 6478 | 7591 | C. E. Bash & Co., Huntington.. | 8.7 | 3.5 | 4.0 | 14.5 | 18.0 |
| Ossian Roller Mills, Ossian, Ind. Wheat Bran and Ground Wheat Screenings ----- | 6400 | 6688 | Manufacturer ----- | 9.9 | 3.5 | 3.8 | 13.5 | 14.0 |
| Wheat Bran and Ground Wheat Screenings ----- | 6400 | 7961 | Manufacturer ----- | 8.7 | 3.5 | 3.8 | 13.5 | 14.1 |

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Pancost Milling Company, Elkhart, Ind. Bran & Screenings ----- | 6886 | 7553 | Manufacturer ----- | 8.7 | 3.0 | 3.6 | 14.0 | 15.4 |
| Paoli Milling Company, The, Paoli, Ind. Clear Mill Feed ----- | 3019 | 8094 | Manufacturer ----- | 8.3 | 3.0 | 4.5 | 12.0 | 15.2 |
| Peru Milling Company, The, Peru, Ind. Wheat Bran & Screenings ----- | 17 | 6612 | Manufacturer ----- | 8.6 | 3.1 | 3.9 | 14.5 | 13.7 |
| Wheat Bran & Screenings ----- | 17 | 8002 | Manufacturer ----- | 8.4 | 3.1 | 4.1 | 14.5 | 13.7 |
| Phoenix Flour Mill, Evansville, Ind. Bran & Screenings ----- | 2252 | 7831 | Manufacturer ----- | 8.9 | 4.0 | 3.7 | 15.0 | 16.5 |
| Pillsbury Flour Mills Company, Minneapolis, Minn. Pillsbury's Wheat Bran with Ground Screenings not exceeding Mill Run --- | 7133 | 6233 | J. C. Phillips, Star City ----- | 9.6 | 4.0 | 5.1 | 13.0 | 14.2 |
| Pillsbury's Wheat Bran with Ground Screenings not exceeding Mill Run --- | 7133 | 8133 | Wolfram Grain Co., Brownsburg ----- | 8.6 | 4.0 | 5.2 | 13.0 | 15.5 |
| Plant Milling Company, Geo. P., St. Louis, Mo. (P) Bran & Screenings ----- | 4753 | 7053 | Early & Daniel Co., Aurora ----- | 10.0 | 3.0 | 3.1 | 15.0 | 16.5 |
| Princeton Milling Company, The, Princeton, Ind. ††Star Feed ----- | 8618 | 8313 | A. L. Rudolph, Palmyra ----- | 9.1 | 3.5 | 3.9 | 13.5 | 15.8 |
| Red Mill, The, R. F. D., Fairland, Ind. Mixed Feed ----- | 2601 | 7804 | Manufacturers ----- | 9.8 | 3.8 | 3.9 | 14.0 | 16.4 |
| Schultz Bros., Elberfeld, Ind. Wheat Bran and Screenings ----- | 3924 | 6933 | Manufacturers ----- | 9.0 | 3.5 | 4.1 | 13.5 | 14.0 |
| Sheffield-King Milling Company, Minneapolis, Minn. Fancy "Brodflake" ----- | 7602 | 7372 | McMahan Bros., Valparaiso --- | 10.2 | 3.5 | 4.6 | 13.5 | 14.7 |
| Sparks Milling Company, Terre Haute, Ind. Wabash Bran and Screenings ----- | 2775 | 5901 | Salem Milling Co., Salem ----- | 8.8 | 3.5 | 4.3 | 14.0 | 14.7 |
| Wabash Bran and Screenings ----- | 2775 | 8297 | Ed. Davis, Ramsey ----- | 8.3 | 3.5 | 3.8 | 14.0 | 14.4 |
| Stanard-Tilton Milling Company, St. Louis, Mo. Wheat Bran & Screenings ----- | 5257 | 7481 | B. I. Holser & Co., Walkerton --- | 7.2 | 3.0 | 4.2 | 14.0 | 16.6 |
| Star & Crescent Milling Company, Chicago, Ill. Star Bran with Ground Screenings not Exceeding Mill Run ----- | 5377 | 7997 | Simon J. Carroll, Bunker Hill --- | 9.0 | 4.0 | 4.3 | 15.0 | 15.2 |
| ††Star Bran with Ground Screenings not Exceeding Mill Run ----- | 5377 | 8382 | F. O. Underhill, Greensfork --- | 8.7 | 4.0 | 5.1 | 15.0 | 16.6 |
| Trow Company, W., Madison, Ind. Trow's Bran and Screenings ----- | 1973 | 5455 | Manufacturer ----- | 9.8 | 3.5 | 4.5 | 14.0 | 14.8 |
| Trow's Bran and Screenings ----- | 1973 | 8148 | C. G. Hunger, Madison ----- | 9.2 | 3.5 | 4.2 | 14.0 | 15.1 |
| Valier & Spies Milling Company, St. Louis, Mo. Valier's Wheat Bran with Ground Wheat Screening ----- | 6156 | 6636 | Valier & Spies Milling Co., Terre Haute ----- | 8.9 | 3.5 | 4.4 | 14.5 | 17.2 |
| Valier's Wheat Bran with Ground Wheat Screening ----- | 6156 | 6674 | Kewanna Butter & Produce Co., Kewanna ----- | 8.6 | 3.5 | 4.6 | 14.5 | 17.3 |
| ††Valier's Wheat Bran with Ground Wheat Screening ----- | 6156 | 7173 | Bloomfield Mill & Elevator Co., Bloomfield ----- | 10.2 | 3.5 | 4.6 | 14.5 | 17.5 |
| Valier's Wheat Bran with Ground Wheat Screening ----- | 6156 | 7528 | Ola Chambers, Anderson ----- | 9.7 | 3.5 | 4.6 | 14.5 | 17.3 |

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Wagner-White Company, Inc., Jackson, Mich. Bran with Screenings not to Exceed Mill Run ----- | 8854 | 8247 | Fremont Co-operative Assoc., Fremont ----- | 8.0 | 5.0 | 5.3 | 14.0 | 15.4 |
| Washburn-Crosby Company, Minneapolis, Minn. Washburn-Crosby Co's Wheat Bran with Ground Screenings not ex- ceeding Mill Run ----- | 5464 | 7488 | Vandalia Elevator Co., Colfax. | 8.6 | 4.0 | 5.7 | 14.5 | 14.5 |
| Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7229 | 5506 | Studebaker Grain & Seed Co., Van Buren ----- | 8.1 | 4.0 | 4.1 | 13.0 | 15.8 |
| Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7229 | 5006 | George N. Gard, Schererville.----- | 9.0 | 4.0 | 4.9 | 13.0 | 13.9 |
| ††Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7229 | 5613 | McCray Grain Co., Kentland---- | 10.3 | 4.0 | 4.2 | 13.0 | 14.8 |
| Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7229 | 6228 | Simon J. Carroll, Royal Center. | 9.8 | 4.0 | 4.9 | 13.0 | 14.5 |
| Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7229 | 7937 | J. S. Hazelrigg, Straughn ----- | 9.7 | 4.0 | 5.4 | 13.0 | 15.8 |
| Wheat Bran with Ground Screenings not exceeding Mill Run ----- | 7229 | 8108 | Farmers Elevator Co., South Whitley ----- | 8.2 | 4.0 | 5.5 | 13.0 | 15.4 |
| Western Flour Mill Company, Davenport, Iowa Black Hawk Bran with Ground Screenings not to Exceed Mill Run--- | 7895 | 5927 | Orleans Mill & Elevator Co., Orleans ----- | 8.8 | 3.0 | 4.4 | 13.3 | 15.7 |
| ††Black Hawk Bran with Ground Screenings not to Exceed Mill Run--- | 7895 | 6004 | Galbreath & Schriener, Cayuga-- | 10.0 | 3.0 | 4.7 | 13.3 | 15.4 |
| Black Hawk Bran with Ground Screenings not to Exceed Mill Run--- | 7895 | 6949 | Nixon & VanDeventer, Attica--- | 9.1 | 3.0 | 4.8 | 13.3 | 16.0 |
| Black Hawk Bran with Ground Screenings not to Exceed Mill Run--- | 7895 | 7608 | D. R. Murray, Clinton ----- | 8.9 | 3.0 | 5.8 | 13.3 | 17.1 |
| Wright, John H., Clinton, Ind. Venus Bran & Screenings ----- | 7250 | 7238 | Manufacturer ----- | 9.6 | 3.5 | 4.7 | 14.0 | 16.0 |
| Yoder, Marion J., Middlebury, Ind. ††Wheat Bran & Ground Wheat Screen- ings ----- | 8784 | 7437 | Manufacturer ----- | 8.8 | 3.7 | 4.2 | 14.0 | 13.1 |
| Wheat Bran & Ground Wheat Screen- ings ----- | 8784 | 8126 | Marion J. Yoder, Goshen----- | 8.9 | 3.7 | 4.1 | 14.0 | 13.9 |
| Ziliak & Schafer Milling Company, Haubstadt, Ind. Wheat Bran & Screenings ----- | 8597 | 7983 | Ziliak & Schafer Milling Co., Evansville ----- | 7.0 | 4.0 | 4.3 | 14.0 | 14.6 |
| STANDARD WHEAT MIDDINGS OR SHORTS | | | | | | | | |
| Acme Milling Company, The, Aurora, Ind. Middings ----- | 968 | 5452 | Manufacturer ----- | 10.1 | 3.9 | 5.0 | 14.2 | 16.3 |
| Middings ----- | 968 | 7661 | Manufacturer ----- | 10.0 | 3.9 | 4.8 | 14.2 | 16.1 |
| Akron Milling Company, The, Akron, Ind. Wheat Middings ----- | 2795 | 8054 | Manufacturer ----- | 10.1 | 4.0 | 2.8 | 14.0 | 13.4 |
| Amboy Milling Company, Amboy, Ind. Wheat Middings ----- | 6088 | 6872 | Manufacturer ----- | 10.2 | 3.5 | 3.8 | 13.5 | 15.9 |
| Anchor Milling Company, Rochester, Ind. Wheat Middings ----- | 3747 | 5371 | C. L. Dille Co., Logansport---- | 9.9 | 4.0 | 4.6 | 14.0 | 15.4 |
| Wheat Middings ----- | 3747 | 5702 | Manufacturer ----- | 9.0 | 4.0 | 4.3 | 14.0 | 14.3 |
| Wheat Middings ----- | 3747 | 8113 | Manufacturer ----- | 11.7 | 4.0 | 4.7 | 14.0 | 15.4 |
| Angola Flouring Mills, Angola, Ind. Angola Flouring Mills Middings----- | 1097 | 7389 | Manufacturer ----- | 10.5 | 4.0 | 5.4 | 14.0 | 18.1 |
| Angola Flouring Mills Middings----- | 1097 | 8261 | Manufacturer ----- | 9.6 | 4.0 | 4.8 | 14.0 | 15.9 |

† Before registration

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Barry, Russell, Crandall, Ind. Wheat Middlings ----- | 8422 | 8315 | Crandall Flouring Mill, Crandall | 10.5 | 3.0 | 3.8 | 13.0 | 14.5 |
| Bergenroth Bros., Troy, Ind. Middlings ----- | 2025 | 8221 | Manufacturer ----- | 10.1 | 4.0 | 4.2 | 15.0 | 15.4 |
| Berlien Mills, Angola, R. F. D., Ind. Wheat Middlings ----- | 7515 | 8259 | Manufacturer ----- | 10.0 | 3.0 | 3.6 | 12.0 | 14.7 |
| Berne Milling Company, Berne, Ind. Wheat Shorts ¹³ ----- | 8018 | 6048 | Manufacturer ----- | 11.6 | 2.3 | 1.2 | 13.0 | 9.9 |
| Wheat Shorts ----- | 8018 | 7428 | Manufacturer ----- | 10.7 | 2.3 | 2.8 | 13.0 | 12.9 |
| Billman & Sons, C. H., Shelbyville, Ind. Shelby Shorts ----- | 4943 | 7799 | Cutsinger & Thompson, Shelbyville ----- | 9.3 | 2.0 | 5.2 | 12.0 | 17.2 |
| Bluffton Milling Company, Bluffton, Ind. Wheat Middlings ----- | 8017 | 6194 | Manufacturer ----- | 9.9 | 2.5 | 4.2 | 13.0 | 15.7 |
| Bridgeton Milling Company, Bridgeton, Ind. Wheat Shorts ----- | 7717 | 7626 | Manufacturer ----- | 11.9 | 2.0 | 4.0 | 13.0 | 15.6 |
| Brizius Company, The Chas. W., Newburgh, Ind. Eagle Wheat Shorts or Middlings ----- | 7194 | 7982 | Manufacturer ----- | 9.4 | 3.8 | 4.6 | 14.0 | 17.8 |
| Brose & Arnold, Evansville, Ind. Wheat Middlings ----- | 7491 | 7875 | Manufacturer ----- | 9.5 | 4.0 | 4.4 | 14.0 | 16.5 |
| Browning & Company, Alexandria, Ind. Brownings Shorts ----- | 396 | 6066 | Chas. F. Naber & Co., Alexandria ----- | 11.4 | 4.0 | 4.5 | 14.0 | 15.5 |
| Brownings Shorts ----- | 396 | 7579 | Chas. F. Naber & Co., Alexandria ----- | 10.0 | 4.0 | 4.1 | 14.0 | 15.8 |
| Brudi & Company, Jos., New Haven, Ind. Middlings ----- | 2246 | 6026 | Maumee Valley Mills, New Haven ----- | 10.4 | 2.8 | 4.4 | 13.1 | 14.3 |
| Middlings ----- | 2246 | 8173 | Manufacturer ----- | 10.3 | 2.8 | 4.4 | 13.1 | 15.9 |
| Burge-Thomas Milling Company, Marion, Ind. Shorts ----- | 4728 | 6363 | Thomas Milling Co., Marion ----- | 9.5 | 4.0 | 4.7 | 14.0 | 14.7 |
| ††Shorts ----- | 4728 | 7650 | G. W. Jones, Upland ----- | 9.3 | 4.0 | 4.6 | 14.0 | 14.8 |
| Burrell & Morgan, Elkhart, Ind. Middlings ----- | 254 | 6495 | Manufacturer ----- | 10.4 | 4.0 | 4.6 | 14.0 | 14.9 |
| Middlings ----- | 254 | 7549 | Manufacturer ----- | 9.6 | 4.0 | 4.6 | 14.0 | 15.5 |
| Butler Milling Company, Butler, Ind. Butler Milling Co's Wheat Middlings ----- | 1030 | 8238 | Manufacturer ----- | 9.4 | 4.0 | 4.1 | 14.0 | 14.2 |
| Wheat Middlings ----- | 7082 | 7385 | Manufacturer ----- | 10.6 | 3.6 | 3.4 | 14.0 | 14.3 |
| Carpenter, B. O., Perrysville, Ind. "Wheat Middlings" ----- | 4712 | 7669 | Manufacturer ----- | 10.7 | 2.8 | 4.7 | 14.0 | 16.4 |
| Cauble, O. L., Pekin, Ind. Wheat Shorts ----- | 1016 | 5882 | Manufacturer ----- | 10.3 | 4.0 | 4.0 | 14.0 | 15.1 |
| Cauble & Dunlevy, Henryville, Ind. Star Wheat Shorts ¹⁴ ----- | 5826 | 5870 | Manufacturer ----- | 10.5 | 3.5 | 3.3 | 13.5 | 14.8 |
| Champion Roller Milling Company, Richmond, Ind. Wheat Middlings or Shorts ----- | 4700 | 6251 | Manufacturer ----- | 10.0 | 4.0 | 4.8 | 16.0 | 15.6 |
| Wheat Middlings or Shorts ----- | 4700 | 7955 | Manufacturer ----- | 9.6 | 4.0 | 4.9 | 16.0 | 17.0 |

†† Not tagged. Labels furnished

¹⁴ Low grade flour present¹³ Low grade flour, small amount bran present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| City Milling Company, Kendallville, Ind. | | | | | | | | |
| Wheat Middlings ----- | 6370 | 6512 | Manufacturer ----- | 11.4 | 3.0 | 3.9 | 13.0 | 14.4 |
| Wheat Middlings ----- | 6370 | 7510 | Manufacturer ----- | 10.5 | 3.0 | 4.0 | 13.0 | 16.0 |
| City Mills, South Whitley, Ind. | | | | | | | | |
| Wheat Middlings ----- | 6106 | 7150 | Manufacturer ----- | 10.8 | 3.5 | 4.3 | 14.0 | 16.2 |
| Wheat Middlings ----- | 6106 | 8073 | Manufacturer ----- | 9.8 | 3.5 | 3.9 | 14.0 | 16.6 |
| Claypole, Geo. M., Sardinia, Ind. | | | | | | | | |
| Geo. M. Claypole's Wheat Middlings.. | 2500 | 5456 | Manufacturer ----- | 11.2 | 4.0 | 2.8 | 14.0 | 13.7 |
| Coal City Milling Company, Coal City, Ind. | | | | | | | | |
| Coal City Wheat Shorts ¹⁵ ----- | 6913 | 7465 | Manufacturer ----- | 10.5 | 3.5 | 3.4 | 14.0 | 14.2 |
| Cook Milling Company, Richmond, R. R. No. 4, Ind. | | | | | | | | |
| Wheat Middlings ----- | 4797 | 7913 | Manufacturer ----- | 10.3 | 3.7 | 3.9 | 14.0 | 15.7 |
| Corydon Milling Company, Corydon, Ind. | | | | | | | | |
| Wheat Middlings ----- | 3305 | 5846 | Manufacturers ----- | 11.1 | 4.0 | 3.6 | 14.0 | 14.1 |
| Croxton, James W., Cloverdale, Ind. | | | | | | | | |
| Middlings ----- | 246 | 5960 | Manufacture* ----- | 10.4 | 3.8 | 3.8 | 14.0 | 14.6 |
| Deutsch & Sickert Company, Milwaukee, Wis. | | | | | | | | |
| Pure Wheat Middlings ----- | 5472 | 7298 | Middlebury Grain Co., Middlebury ----- | 9.2 | 5.0 | 5.2 | 15.0 | 17.0 |
| Pure Wheat Middlings ¹⁶ ----- | 5472 | 7395 | J. M. Wagner, Roann ----- | 10.9 | 5.0 | 5.0 | 15.0 | 15.5 |
| Pure Wheat Middlings ----- | 5472 | 7396 | Q. A. Carver, Roann ----- | 10.1 | 5.0 | 5.2 | 15.0 | 16.5 |
| Pure Wheat Middlings ¹⁶ ----- | 5472 | 7505 | Geo. Steckley, Kendallville ----- | 9.1 | 5.0 | 6.2 | 15.0 | 16.8 |
| Pure Wheat Middlings ----- | 5472 | 7533 | Yorktown Lumber Co., Yorktown ----- | 9.7 | 5.0 | 5.4 | 15.0 | 16.1 |
| Pure Wheat Middlings ¹⁶ ----- | 5472 | 7826 | S. M. Heard, Evansville ----- | 9.2 | 5.0 | 6.3 | 15.0 | 17.4 |
| Dillsboro Milling Company, Dillsboro, Ind. | | | | | | | | |
| Wheat Shorts ----- | 1008 | 5413 | Manufacturers ----- | 10.6 | 4.0 | 4.3 | 14.0 | 14.6 |
| Wheat Shorts ----- | 1008 | 7710 | Manufacturers ----- | 10.1 | 4.0 | 4.3 | 14.0 | 15.6 |
| Donmeyer Gardner & Co., Peoria, Ill. | | | | | | | | |
| *Pure Wheat Middlings ----- | --- | 8293 | Montmorenci Elevator Co., Montmorenci ----- | 10.0 | --- | 4.7 | --- | 16.5 |
| Duglay & Jones, Churubusco, Ind. | | | | | | | | |
| Wheat Middlings ----- | 7468 | 7405 | Manufacturers ----- | 10.3 | 3.0 | 3.9 | 13.0 | 16.1 |
| Eberts & Bro., North Vernon, Ind. | | | | | | | | |
| Wheat Shorts ----- | 5413 | 8209 | Manufacturers ----- | 10.5 | 4.0 | 4.3 | 15.0 | 15.9 |
| Eckhart Milling Company, B. A., Chicago, Ill. | | | | | | | | |
| Flour Middlings ----- | 6195 | 6226 | J. R. Starr, Winamac ----- | 9.4 | 4.0 | 3.9 | 15.0 | 16.3 |
| Eesley & Company, Wm., College Corner, Ohio | | | | | | | | |
| Wheat Middlings ----- | 2921 | 5497 | Manufacturers ----- | 10.2 | 4.0 | 4.2 | 14.0 | 14.1 |
| Egloff Milling Company, Vincennes, Ind. | | | | | | | | |
| Wheat Shorts ----- | 6054 | 7225 | Manufacturers ----- | 10.0 | 4.0 | 3.6 | 14.0 | 16.4 |
| Enos & Lee, New Albany, Ind. | | | | | | | | |
| Fancy Middlings ----- | 989 | 5772 | J. M. Lee & Co., New Albany--- | 9.3 | 4.0 | 4.3 | 16.0 | 17.1 |
| Fornax Milling Company, Decatur, Ind. | | | | | | | | |
| *Middlings ¹⁷ ----- | --- | 5416 | Adolph Marbach, Decatur ----- | 9.6 | --- | 4.0 | --- | 14.6 |

* Not tagged

¹⁵ Low grade flour present

¹⁶ Screenings present. Removed from sale.

Relabeled No. 7188

¹⁷ Not tagged. Wheat bran present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Fuhrer-Ford Milling Company, Mt. Vernon, Ind. | | | | | | | | |
| Wheat Middlings ----- | 4682 | 6893 | Manufacturer ----- | 9.3 | 3.5 | 4.2 | 14.0 | 15.3 |
| Wheat Middlings ----- | 4682 | 7979 | Manufacturer ----- | 9.5 | 3.5 | 4.2 | 14.0 | 16.1 |
| Wheat Shorts ----- | 8794 | 7974 | Fuhrer-Ford Milling Co., New Harmony ----- | 8.3 | 4.0 | 5.4 | 14.0 | 18.1 |
| Gaston Roller Mills, Gaston, Ind. | | | | | | | | |
| Wheat Middlings ----- | 5509 | 6335 | Manufacturer ----- | 10.5 | 2.0 | 4.4 | 12.0 | 16.5 |
| Geneva Milling & Grain Company, Geneva, Ind. | | | | | | | | |
| Shorts & Middlings ----- | 7527 | 6035 | Manufacturer ----- | 10.5 | 2.5 | 2.5 | 13.0 | 13.8 |
| Globe Mills, The, Fort Wayne, Ind. | | | | | | | | |
| The Globe Mills Wheat Shorts ----- | 426 | 5517 | Manufacturer ----- | 10.0 | 4.0 | 5.4 | 14.0 | 16.3 |
| The Globe Mills Wheat Shorts ----- | 426 | 8190 | Manufacturer ----- | 10.1 | 4.0 | 3.4 | 14.0 | 14.6 |
| Green Bros. & Oldfather, Warsaw, Ind. | | | | | | | | |
| Wheat Middlings ¹⁸ ----- | 8369 | 7168 | Manufacturer ----- | 10.2 | 4.0 | 5.6 | 14.0 | 16.3 |
| Wheat Middlings ----- | 8369 | 8062 | Manufacturer ----- | 9.1 | 4.0 | 5.4 | 14.0 | 17.7 |
| Hales & Edwards Company, Chicago, Ill. | | | | | | | | |
| Wheat Middlings ¹⁹ ----- | 8476 | 6910 | Fred Holtz, Williamsport ----- | 8.8 | 3.0 | 5.0 | 15.0 | 16.1 |
| Wheat Middlings ²⁰ ----- | 8476 | 6998 | Morocco Feed & Grist Mill, Morocco ----- | 10.3 | 3.0 | 4.9 | 15.0 | 15.8 |
| Wheat Middlings ²¹ ----- | 8476 | 7237 | Smith Grocery Co., Clinton ----- | 9.8 | 3.0 | 4.5 | 15.0 | 15.8 |
| Hall Milling Company, W. C., Brazil, Ind. | | | | | | | | |
| Hall's Wheat Shorts ----- | 5023 | 6668 | Manufacturers ----- | 11.1 | 2.0 | 4.4 | 13.0 | 12.0 |
| Hampton, W. D., Worthington, Ind. | | | | | | | | |
| Wheat Shorts ----- | 2220 | 7178 | Manufacturer ----- | 10.8 | 2.3 | 2.9 | 12.8 | 15.4 |
| Haynes Milling Company, The, Portland, Ind. | | | | | | | | |
| Wheat Middlings ----- | 4389 | 6835 | Manufacturers ----- | 10.8 | 3.0 | 4.7 | 14.0 | 16.5 |
| Hazleton Flour Mills, Hazleton, Ind. | | | | | | | | |
| Wheat Shorts ----- | 7475 | 6729 | Manufacturers ----- | 10.0 | 3.0 | 3.4 | 14.0 | 14.4 |
| Hering Company, J., Shelbyville, Ind. | | | | | | | | |
| Shorts ----- | 829 | 7797 | E. R. Hering, Shelbyville ----- | 12.2 | 4.0 | 5.5 | 12.0 | 16.1 |
| Hibbits Mill Company, Muncie, Ind. | | | | | | | | |
| Finished Middlings ----- | 7298 | 5906 | Manufacturers ----- | 9.7 | 4.0 | 4.7 | 14.0 | 16.3 |
| Home Mill & Grain Company, Mt. Vernon, Ind. | | | | | | | | |
| Home Mill & Grain Co's Wheat Ship- stuff ----- | 3236 | 7977 | Sunlight Milling Co., Mt Vernon ----- | 8.8 | 4.2 | 5.1 | 16.9 | 17.3 |
| Hornung, J. M., Greensburg, Ind. | | | | | | | | |
| Middlings ----- | 415 | 7870 | Manufacturer ----- | 9.7 | 3.8 | 4.2 | 14.2 | 16.1 |
| Huntington Mill Company, Huntington, Ind. | | | | | | | | |
| Shorts ----- | 495 | 6589 | Manufacturers ----- | 9.2 | 3.9 | 5.6 | 14.3 | 16.9 |
| Shorts ----- | 495 | 7588 | Manufacturers ----- | 9.9 | 3.9 | 5.0 | 14.3 | 16.5 |
| Hurn Milling Company, W. D., New Salisbury, Ind. | | | | | | | | |
| Wheat Middlings ----- | 8089 | 5854 | Manufacturers ----- | 11.5 | 3.5 | 3.5 | 13.0 | 14.0 |
| Wheat Middlings ----- | 8089 | 8291 | Manufacturers ----- | 9.7 | 3.5 | 4.5 | 13.0 | 15.4 |
| Iroquois Roller Mills, Rensselaer, Ind. | | | | | | | | |
| Wheat Middlings ----- | 6140 | 6952 | Manufacturers ----- | 9.5 | 2.5 | 4.2 | 12.0 | 15.8 |

¹⁸ Foreign material present consisting of chaff, ground corn, weed seed coatings and wheat
¹⁹ Conflicting guarantees on bags and official labels, 1800 lbs. removed from sale. Screenings present
²⁰ Removed from sale. Relabeled No. 8624. Screenings present
²¹ Removed from sale. Relabeled No. 7643. Screenings present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Jones & Son, C. N., Wabash, Ind. Wheat Middlings ²² | 5190 | 5559 | Manufacturers | 11.7 | 3.5 | 2.3 | 14.0 | 12.9 |
| Katterjohn, A. F., Lynnville, Ind. Katterjohn's Shorts | 6937 | 6931 | Manufacturer | 10.3 | 3.4 | 2.0 | 14.0 | 13.6 |
| Kaw Milling Company, The, Topeka, Kansas. Kaw Kaw Pure Middlings ²³ | 8306 | 7602 | Clover Leaf Mills, Kokomo..... | 9.7 | 3.0 | 3.8 | 15.0 | 16.8 |
| Kendall, Dor Cuy, Williamsburg, Ind. Wheat Shorts | 363 | 7899 | Williamsburg Flour Mills, Williamsburg | 9.4 | 4.0 | 3.7 | 14.0 | 15.4 |
| Kennedy Milling Company, Geo. W., Shelbyville, Ind. Middlings | 2110 | 6996 | Manufacturers | 9.8 | 3.5 | 4.2 | 13.5 | 15.9 |
| Middlings | 2110 | 7861 | Manufacturers | 8.3 | 3.5 | 5.4 | 13.5 | 18.5 |
| Keplinger, Chas., Zanesville, Ind. Middlings | 842 | 6689 | Zanesville Roller Mills, Zanesville | 10.1 | 4.0 | 3.8 | 14.0 | 15.4 |
| Klemm, Geo. J., Milton, Ind. Wheat Middlings | 4736 | 7945 | Manufacturer | 10.2 | 2.0 | 3.9 | 10.0 | 15.6 |
| Klondike Milling Company, Danville, Ind. Wheat Middlings ²⁴ | 2653 | 5576 | Manufacturers | 11.4 | 3.5 | 2.6 | 13.5 | 15.0 |
| Lafayette Milling Company, Lafayette, Ind. Middlings | 3831 | 8116 | Manufacturers | 10.6 | 2.8 | 4.8 | 14.0 | 16.7 |
| Lawrenceburg Roller Mills Company, The, Lawrenceburg, Ind. "Snowflake" Middlings | 11 | 5445 | Star Milling Co., Aurora..... | 8.5 | 5.1 | 5.4 | 16.0 | 17.3 |
| "Snowflake" Middlings | 11 | 6552 | Richard Hagans, Greenfield..... | 9.7 | 5.1 | 5.1 | 16.0 | 17.0 |
| "Snowflake" Middlings | 11 | 7709 | Geo. Niemeyer & Sons, Dillsboro | 8.6 | 5.1 | 5.1 | 16.0 | 18.0 |
| "Snowflake" Middlings | 11 | 7800 | Cutsinger & Thompson, Shelbyville | 8.4 | 5.1 | 5.4 | 16.0 | 18.2 |
| Golden Bull Middlings | 7111 | 5408 | Milan Mill & Elevator, Milan.... | 9.7 | 3.0 | 4.6 | 17.5 | 19.2 |
| Leesburg Grain & Milling Company, The, Leesburg, Ind. Middlings | 306 | 7267 | Manufacturers | 9.3 | 4.0 | 3.5 | 14.0 | 13.6 |
| Lemon Milling Company, The, Bedford, Ind. Flour Middlings | 7431 | 5921 | Manufacturers | 10.0 | 2.0 | 2.7 | 12.0 | 14.1 |
| Flour Middlings | 7431 | 8086 | Manufacturers | 9.0 | 2.0 | 4.3 | 12.0 | 15.8 |
| Linton Mill Company, The, Linton, Ind. Wheat Shorts | 507 | 7133 | Manufacturers' | 10.5 | 4.0 | 3.7 | 14.0 | 16.3 |
| Listman Mill Company, La Crosse, Wis. Elmco Standard Middlings | 3367 | 6909 | Williamsport Grain Co., Williamsport | 9.9 | 5.6 | 5.6 | 18.1 | 18.1 |
| Maegerlein, E. S., Patricksburg, Ind. Shorts ²⁵ | 8100 | 6205 | Manufacturer | 10.1 | 3.0 | 3.0 | 13.0 | 13.9 |
| Shorts | 8100 | 7137 | Manufacturer | 10.6 | 3.0 | 3.1 | 13.0 | 15.8 |
| Marshall Milling Company, Marshall, Ind. Shorts ²⁶ | 5157 | 7632 | Manufacturers | 10.7 | 4.0 | 1.7 | 14.0 | 13.4 |
| Marshall Milling Company, Marshall, Minn. Wheat Flour Middlings | 8023 | 6154 | Crabbs Reynolds Taylor Co., Lafayette | 9.8 | 5.0 | 5.7 | 17.0 | 18.6 |

²² Sample consisted of low grade flour and trace middlings²³ Low grade flour present²⁴ Sample consisted of low grade flour and trace middlings²⁵ Low grade flour present²⁶ Large amount of flourstuff present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Martin & Martin, New Castle, Ind. | | | | | | | | |
| Martin & Martin's Wheat Middlings.. | 3794 | 6546 | Manufacturers ----- | 10.0 | 3.7 | 4.0 | 14.0 | 15.8 |
| *Shorts ----- | | 8350 | Manufacturers ----- | 9.5 | --- | 4.4 | --- | 16.8 |
| Mayflower Mills, Fort Wayne, Ind. | | | | | | | | |
| Mayflower Mills Wheat Middlings----- | 451 | 5516 | Reed Bros., Fort Wayne----- | 8.3 | 4.0 | 4.9 | 14.0 | 14.9 |
| Modoc Roller Mills & Elevator, Modoc, Ind. | | | | | | | | |
| Wheat Middlings ----- | 4963 | 7903 | Manufacturer ----- | 9.2 | 1.5 | 2.5 | 10.0 | 13.3 |
| Moscow Roller Mills, Moscow, Ind. | | | | | | | | |
| Wheat Middlings ----- | 1633 | 7866 | Manufacturers ----- | 10.7 | 3.8 | 3.3 | 14.2 | 14.7 |
| ††Wheat Middlings ----- | 1633 | 7868 | B. L. Coy, Waldron ----- | 10.8 | 3.8 | 3.1 | 14.2 | 14.5 |
| Myers & Son, Joseph H., Chili, Ind. | | | | | | | | |
| Germ Middlings ----- | 3325 | 6617 | Manufacturers ----- | 9.9 | 3.0 | 5.2 | 15.0 | 15.8 |
| New Era Milling Company, The, Arkansas City, Kansas | | | | | | | | |
| Standard Wheat Shorts ----- | 6860 | 7478 | Hamlet Grain Co., Hamlet----- | 5.9 | 4.0 | 4.7 | 17.5 | 17.9 |
| New Milling Company, The, Greenfield, Ind. | | | | | | | | |
| Wheat Middlings ----- | 7721 | 6554 | Manufacturers ----- | 10.1 | 2.4 | 3.6 | 14.0 | 17.2 |
| New Prague Flouring Mill Co., New Prague, Minn. | | | | | | | | |
| Seal of Minnesota Wheat Standard Middlings ----- | 7908 | 7403 | Gandy Grain Co., Churubusco-- | 10.0 | 5.2 | 5.1 | 15.0 | 16.6 |
| Seal of Minnesota Wheat Standard Middlings ----- | 7908 | 7570 | Hoosier Wholesale Grocery Co., South Bend ----- | 9.8 | 5.2 | 5.6 | 15.0 | 17.0 |
| Nodine, W. J., Waterloo, Ind. | | | | | | | | |
| Wheat Middlings ----- | 3151 | 7399 | Manufacturers ----- | 10.2 | 3.5 | 4.2 | 14.0 | 15.9 |
| Wheat Middlings ----- | 3151 | 8234 | Manufacturer ----- | 10.3 | 3.5 | 4.0 | 14.0 | 14.9 |
| Norris & Kidwell, Washington, Ind. | | | | | | | | |
| Wheat Middlings ²⁷ ----- | 8235 | 7192 | Manufacturer ----- | 10.0 | 3.5 | 5.4 | 15.4 | 16.6 |
| North Manchester Milling Company, North Manchester, Ind. | | | | | | | | |
| "North Manchester Milling Company's Middlings" ----- | 855 | 8101 | Manufacturers ----- | 10.5 | 4.0 | 3.1 | 14.0 | 14.1 |
| Orleans Mill & Elevator Company, Orleans, Ind. | | | | | | | | |
| Wheat Middlings ----- | 7019 | 5931 | Manufacturers ----- | 9.1 | 4.0 | 4.2 | 14.0 | 14.5 |
| Wheat Middlings ----- | 7019 | 8084 | Manufacturers ----- | 10.0 | 4.0 | 4.0 | 14.0 | 15.0 |
| Osakis Milling Company, Osakis, Minn. | | | | | | | | |
| Fancy Middlings ----- | 3195 | 7559 | Louis P. Plotnicki, South Bend-- | 8.5 | 4.0 | 6.3 | 15.0 | 17.4 |
| Ossian Roller Mills, Ossian, Ind. | | | | | | | | |
| Wheat Middlings ----- | 6399 | 6687 | Manufacturer ----- | 10.9 | 3.1 | 3.3 | 13.5 | 14.5 |
| Wheat Middlings ----- | 6399 | 7960 | Manufacturer ----- | 10.1 | 3.1 | 3.8 | 13.5 | 15.0 |
| Pancost Milling Company, Elkhart, Ind. | | | | | | | | |
| Middlings ----- | 800 | 7552 | Manufacturers ----- | 9.6 | 4.0 | 4.2 | 14.0 | 15.0 |
| Paoli Milling Company, Paoli, Ind. | | | | | | | | |
| Shorts ²⁸ ----- | 627 | 6961 | Manufacturer ----- | 9.7 | 3.0 | 3.1 | 12.0 | 12.4 |
| Shorts ----- | 627 | 8093 | Manufacturer ----- | 8.4 | 3.0 | 4.3 | 12.0 | 15.6 |
| Peru Milling Company, The, Peru, Ind. | | | | | | | | |
| Wheat Middlings ----- | 18 | 6613 | Manufacturer ----- | 9.0 | 3.1 | 4.9 | 14.2 | 15.8 |
| Wheat Middlings ----- | 18 | 8001 | Manufacturer ----- | 9.1 | 3.1 | 4.9 | 14.2 | 15.9 |

* Not tagged

†† Not tagged. Labels furnished

²⁷ Screenings present. 400 lbs. withdrawn.
Relabeled No. 8531²⁸ Low grade flour present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Plainfield Milling Company, Plainfield, Ind. Wheat Middlings ----- | 4408 | 7545 | Manufacturer ----- | 9.8 | 3.5 | 4.6 | 13.0 | 15.7 |
| Ray & Rice, Camden, Ind. Wheat Shorts ²⁹ ----- | 3002 | 5940 | Manufacturer ----- | 10.2 | 3.0 | 3.3 | 14.0 | 12.8 |
| Red Mill, The, Fairland, Ind. Wheat Middlings ----- | 3256 | 7805 | Manufacturers ----- | 10.3 | 2.5 | 5.2 | 13.0 | 18.1 |
| Richland Milling Company, Bloomfield, Ind. Shipstuff ----- | 1147 | 7181 | Manufacturers ----- | 11.5 | 4.0 | 4.3 | 14.0 | 15.0 |
| Richmond Roller Mills, Richmond, Ind. The Richmond Roller Mills Wheat Middlings ----- | 483 | 6248 | Manufacturers ----- | 9.8 | 3.7 | 4.9 | 14.0 | 16.1 |
| The Richmond Roller Mills Wheat Middlings ----- | 483 | 7951 | Manufacturers ----- | 9.0 | 3.7 | 4.7 | 14.0 | 17.2 |
| Rittenhouse, E. S., Liberty Mills, Ind. Liberty Bird Middlings ----- | 3044 | 8096 | Manufacturer ----- | 9.2 | 2.5 | 3.2 | 12.5 | 14.6 |
| Rockport Milling Company, Rockport, Ind. Kopp's Wheat Middlings ----- | 2748 | 5743 | French Lick Hotel Co., French Lick ----- | 9.0 | 3.5 | 4.3 | 14.0 | 16.4 |
| Kopp's Wheat Middlings ----- | 2748 | 5774 | New Albany Milling Co., New Albany ----- | 9.1 | 3.5 | 4.0 | 14.0 | 15.1 |
| Kopp's Wheat Middlings ----- | 2748 | 7888 | Manufacturers ----- | 9.3 | 3.5 | 5.0 | 14.0 | 16.8 |
| Roper & Brown, Hobart, Ind. Hobart Wheat Middlings ----- | 5960 | 6451 | Manufacturers ----- | 10.9 | 3.5 | 4.9 | 14.0 | 16.5 |
| Hobart Wheat Middlings ----- | 5960 | 6452 | Manufacturers ----- | 11.0 | 3.5 | 3.9 | 14.0 | 15.1 |
| Salem Farmers Milling Company, Salem, Ind. Wheat Shorts ----- | 6922 | 5899 | Manufacturers ----- | 11.4 | 2.0 | 2.6 | 12.0 | 12.6 |
| Wheat Shorts ----- | 6922 | 5900 | Manufacturers ----- | 10.4 | 2.0 | 3.6 | 12.0 | 14.1 |
| Wheat Shorts ----- | 6922 | 8013 | Manufacturers ----- | 10.3 | 2.0 | 2.7 | 12.0 | 12.8 |
| Schulte, W. C., Freelandville, Ind. Wheat Shorts ----- | 6436 | 5999 | Manufacturer ----- | 10.5 | 4.0 | 3.3 | 14.0 | 14.6 |
| Schultz Bros., Elberfeld, Ind. Middlings ----- | 3925 | 6934 | Manufacturers ----- | 9.0 | 4.0 | 4.0 | 14.0 | 14.9 |
| Seidel, W. T., Orland, Ind. Wheat Middlings ----- | 6373 | 6071 | Orland Milling Co., Orland----- | 12.2 | 3.0 | 3.9 | 13.0 | 13.3 |
| Sims Milling Company, Frankfort, Ind. Wheat Shorts ----- | 6304 | 6431 | Manufacturers ----- | 9.8 | 4.0 | 4.6 | 14.0 | 16.2 |
| Wheat Shorts ----- | 6304 | 7493 | Manufacturers ----- | 9.6 | 4.0 | 4.6 | 14.0 | 16.1 |
| Sloan, J. F., Palestine, Burket P. O., Ind. Sloan's Wheat Middlings ----- | 227 | 5879 | Green Bros. & Oldfather, Warsaw ----- | 9.0 | 4.0 | 4.7 | 14.0 | 16.0 |
| Smock & Caca, Noblesville, Ind. †Wheat Middlings ----- | 6881 | 7623 | Manufacturers ----- | 9.8 | 2.0 | 5.3 | 12.0 | 17.5 |
| Southwestern Milling Company, Inc., The, Kansas City, Mo. Pure Wheat Brown Shorts ----- | 7953 | 6507 | Geo. Steckley, Kendallville----- | 8.8 | 4.2 | 4.4 | 15.0 | 15.8 |
| Pure Gray Shorts ----- | 7954 | 8246 | Hammel Milling Co., Fremont-- | 8.6 | 3.8 | 4.4 | 15.0 | 17.9 |
| Sparks Milling Company, Terre Haute, Ind. Wabash Middlings ----- | 2774 | 7765 | Neals Feed Store, Jasonville---- | 9.2 | 4.0 | 4.6 | 14.0 | 17.1 |

†† Not tagged. Labels furnished

²⁹ Low grade flour present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|--------------|--|--------------------|---------------------|-------|-------------------------|-------|
| | Official | Inspection D | | | Guar-anteed | Found | Guar-anteed | Found |
| Starlight Milling Company, Borden, R. R. No. 1, Ind. Wheat Middlings ----- | 7795 | 8027 | Manufacturers ----- | 10.0 | 2.0 | 6.4 | 11.0 | 18.1 |
| Star Milling Company, The, Aurora, Ind. Middlings ----- | 2672 | 7659 | Manufacturers ----- | 10.2 | 4.0 | 4.1 | 14.6 | 16.4 |
| Star Milling Company, Shoals, Ind. Star Shorts ----- | 503 | 7451 | Manufacturers ----- | 11.0 | 4.0 | 4.8 | 14.0 | 16.7 |
| St. Joe Milling Company, St. Joe, Ind. St. Joe's Wheat Middlings ³⁰ ----- | 5127 | 8180 | Garrett Elevator Co., Garrett.. | 16.1 | 4.0 | 3.6 | 14.0 | 15.9 |
| St. Joe's Wheat Middlings ³¹ ----- | 5127 | 8226 | Manufacturers ----- | 10.4 | 4.0 | 3.7 | 14.0 | 14.7 |
| Suckow Company, Franklin, Ind. "Perfection" Wheat Middlings ³² ----- | 5046 | 6672 | Morgantown Grain Co., Morgantown ----- | 7.8 | 4.0 | 4.0 | 14.0 | 15.5 |
| Taylor-Hitz Company, Madison, Ind. Middlings ----- | 413 | 8203 | Manufacturers ----- | 9.4 | 4.0 | 4.4 | 14.0 | 15.2 |
| Thomas & Son, A. R., Markle, Ind. Wheat Shorts ----- | 3189 | 5541 | Manufacturers ----- | 10.3 | 3.2 | 5.3 | 14.1 | 15.9 |
| Thurgood, Chas. R., Vincennes, Ind. Wheat Middlings ----- | 8077 | 7223 | Manufacturer ----- | 9.6 | 3.0 | 3.7 | 13.0 | 17.3 |
| Timbrook & Hursh, Auburn, Ind. Auburn Roller Mills Middlings ----- | 6985 | 6577 | H. W. Timbrook, Auburn ----- | 10.1 | 3.4 | 4.8 | 14.0 | 15.4 |
| Auburn Roller Mills Middlings ----- | 6985 | 7398 | H. W. Timbrook, Auburn ----- | 11.0 | 3.4 | 4.6 | 14.0 | 17.5 |
| Auburn Roller Mills Middlings ----- | 6985 | 8232 | H. W. Timbrook, Auburn ----- | 10.4 | 3.4 | 4.0 | 14.0 | 17.6 |
| Tresselt & Sons, C., Fort Wayne, Ind. Wheat Shorts ³³ ----- | 410 | 5531 | Manufacturers ----- | 9.9 | 4.0 | 4.0 | 14.0 | 15.0 |
| Wheat Middlings ----- | 411 | 5533 | Manufacturers ----- | 10.0 | 4.0 | 5.4 | 14.0 | 16.3 |
| Tuttle & Company, R., Columbia City, Ind. Perfection Middlings ----- | 818 | 6096 | Manufacturers ----- | 9.3 | 4.0 | 5.2 | 14.0 | 16.4 |
| Perfection Middlings ----- | 818 | 8068 | Manufacturers ----- | 9.0 | 4.0 | 5.1 | 14.0 | 16.8 |
| Uhl-Snyder Milling Company, Connersville, Ind. Wheat Middlings ----- | 5136 | 6740 | Manufacturers ----- | 10.1 | 3.7 | 4.8 | 14.0 | 15.6 |
| Victoria Milling Company, The, Jasper, Ind. Victoria Wheat Shorts ----- | 7170 | 5747 | Manufacturers ----- | 10.2 | 3.3 | 4.2 | 15.0 | 15.6 |
| Wabash Milling Company, The, Wabash, Ind. Middlings ----- | 2 | 5557 | Manufacturers ----- | 12.0 | 4.0 | 4.2 | 14.0 | 15.6 |
| Wakarusa Milling Company, The, Wakarusa, Ind. Wheat Middlings ----- | 7642 | 8299 | Manufacturers ----- | 9.1 | 3.7 | 4.2 | 13.0 | 14.5 |
| Walker & Son, J. M., Middletown, Ind. Gilt Edge Middlings ----- | 8162 | 6291 | Manufacturers ----- | 10.7 | 3.7 | 5.1 | 14.0 | 17.0 |
| Gilt Edge Middlings ----- | 8162 | 7516 | A. Holliday, Muncie ----- | 10.2 | 3.7 | 4.8 | 14.0 | 14.8 |
| Gilt Edge Middlings ----- | 8162 | 7928 | New Castle Elevator Co., New Castle ----- | 10.2 | 3.7 | 4.6 | 14.0 | 16.1 |
| Wallace Milling Company, The, Dale, Ind. Wallace's Pure Wheat Middlings ----- | 7747 | 7972 | Manufacturers ----- | 9.3 | 4.0 | 5.8 | 15.0 | 17.6 |

³⁰ Removed from sale. Misbranded³¹ Removed from sale. Misbranded.
No. 8925. Wheat bran present

Relabeled

³² Screenings consisting of ground cheat and
chaff present³³ Wheat bran present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Wellington Milling Company, Anderson, Ind. | | | | | | | | |
| Wellington's A. X. A. Middlings..... | 4987 | 6280 | Manufacturers | 9.4 | 4.0 | 5.0 | 15.0 | 16.2 |
| Wellington's A. X. A. Middlings..... | 4987 | 7526 | S. R. Snell, Muncie | 10.3 | 4.0 | 4.7 | 15.0 | 17.2 |
| Wells-Abbott-Nieman Co., Schuyler, Neb. | | | | | | | | |
| Wheat Shorts | 6942 | 7575 | Union Grain & Feed Co., Anderson | 9.5 | 4.0 | 4.4 | 15.0 | 17.7 |
| Wheat Shorts ³⁴ | 6942 | 7647 | Union Grain & Feed Co. Anderson | 9.2 | 4.0 | 4.2 | 15.0 | 17.9 |
| Western Flour Mill Company, Davenport, Iowa | | | | | | | | |
| Black Hawk Standard Middlings..... | 7896 | 5928 | Orleans Mill & Elevator Co., Orleans | 9.3 | 5.2 | 4.9 | 15.0 | 17.3 |
| Black Hawk Standard Middlings..... | 7896 | 6481 | McCoy & Garten, Indianapolis..... | 9.7 | 5.2 | 5.4 | 15.0 | 16.9 |
| Black Hawk Standard Middlings..... | 7896 | 6883 | Batchelor & Barlow, Sharpville..... | 9.5 | 5.2 | 5.0 | 15.0 | 15.9 |
| Black Hawk Standard Middlings..... | 7896 | 7610 | D. R. Murray, Clinton | 11.3 | 5.2 | 5.6 | 15.0 | 17.7 |
| Witmer Grain Company, Grabill, Ind. | | | | | | | | |
| Wheat Middlings | 1679 | 8230 | Manufacturers | 9.7 | 4.0 | 4.8 | 14.0 | 15.8 |
| Woodburn Elevator & Milling Company, Woodburn, Ind. | | | | | | | | |
| Wheat Middlings | 5480 | 6146 | Manufacturers | 10.1 | 3.0 | 2.8 | 14.0 | 13.3 |
| Zabel & Son, Lanesville, Ind. | | | | | | | | |
| Wheat Middlings | 7039 | 5845 | New Middletown Milling Co., New Middletown | 11.1 | 2.5 | 4.6 | 14.0 | 14.9 |
| Zenith Milling Company, Kansas City, Mo. | | | | | | | | |
| Wheat Shorts | 7372 | 5481 | I. B. Clyne, Crawfordsville..... | 10.0 | 3.5 | 5.4 | 16.0 | 17.0 |
| Wheat Shorts | 7372 | 5914 | Sturgeon Grain & Coal Co., Muncie | 9.1 | 3.5 | 5.3 | 16.0 | 17.6 |
| Ziliak & Schafer Milling Company, Haubstadt, Ind. | | | | | | | | |
| Middlings | 4059 | 5655 | Manufacturers | 10.7 | 3.5 | 3.8 | 14.5 | 15.9 |
| Middlings | 4059 | 7919 | Manufacturers | 10.4 | 3.5 | 4.1 | 14.5 | 15.5 |
| No Manufacturer | | | | | | | | |
| *Wheat Middlings | --- | 7923 | Fuhrer Ford Milling Co., New Harmony | 10.0 | --- | 4.8 | --- | 17.6 |
| WHEAT MIDDINGS AND RED DOG FLOUR | | | | | | | | |
| Cadick Milling Company, Grandview, Ind. | | | | | | | | |
| Shipstuff | 7859 | 5790 | Bernard Hartz, Chrisney..... | 10.1 | 4.0 | 4.4 | 16.0 | 15.4 |
| Shipstuff | 7859 | 5794 | Manufacturers | 9.8 | 4.0 | 4.3 | 16.0 | 15.7 |
| Shipstuff | 7859 | 8224 | Manufacturers | 8.5 | 4.0 | 5.2 | 16.0 | 16.8 |
| WHITE MIDDINGS | | | | | | | | |
| Bachman Flour Mill, Indianapolis, Ind. | | | | | | | | |
| White Middlings | 5902 | 6540 | Valentine Bachman, Indianapolis | 10.1 | 3.7 | 3.7 | 15.0 | 15.2 |
| White Middlings | 5902 | 7742 | Manufacturers | 9.8 | 3.7 | 4.5 | 15.0 | 16.1 |
| Bicknell Mill Company, Bicknell, Ind. | | | | | | | | |
| White Middlings | 7825 | 8387 | Manufacturers | 9.5 | 3.0 | 3.8 | 12.0 | 14.4 |
| Clayton Milling Company, Clayton, Ind. | | | | | | | | |
| White Middlings | 7722 | 6374 | Manufacturers | 9.6 | 1.8 | 2.9 | 13.0 | 13.8 |
| Collamer Milling Company, Collamer, Ind. | | | | | | | | |
| White Middlings | 7052 | 7147 | Manufacturers | 10.2 | 2.0 | 3.9 | 13.0 | 15.1 |
| White Middlings | 7052 | 8097 | Manufacturers | 9.2 | 2.0 | 4.2 | 13.0 | 16.2 |
| J Street Milling Company, Laporte, Ind. | | | | | | | | |
| White Middlings | 5054 | 6348 | Manufacturers | 9.8 | 2.0 | 4.4 | 12.0 | 16.5 |

* Not tagged

³⁴ Removed from sale. Conflicting guarantees.
Relabeled with No. 7349

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Kehlör Flour Mills Company, St. Louis, Mo. | | | | | | | | |
| Neptune White Middlings | 4191 | 6219 | Crabbs Reynolds Taylor Co., Lafayette | 9.5 | 4.0 | 3.6 | 17.0 | 16.8 |
| Neptune White Middlings | 4191 | 7464 | Paul Kuhn & Co., Clay City | 10.1 | 4.0 | 3.8 | 17.0 | 17.9 |
| Myers & Son, Joseph H., Chili, Ind. | | | | | | | | |
| White Middlings | 7581 | 6616 | Manufacturers | 10.4 | 2.9 | 2.5 | 13.9 | 13.0 |
| White Middlings | 7581 | 7406 | J. L. & J. M. Myers, Chili | 11.4 | 2.9 | 2.1 | 13.9 | 12.7 |
| Rockport Milling Company, Rockport, Ind. | | | | | | | | |
| Kopp's White Middlings | 7477 | 5797 | Manufacturers | 9.9 | 2.3 | 3.3 | 13.5 | 14.0 |
| Southwestern Milling Company, Inc., The, Kansas City, Mo. | | | | | | | | |
| Pure Fancy White Middlings | 7955 | 6509 | Geo. Steckley, Kendallville | 11.6 | 2.5 | 3.1 | 14.0 | 15.9 |
| Sullivan Mill & Elevator Company, Sullivan, Ind. | | | | | | | | |
| *White Middlings | | 5584 | Manufacturers | 12.1 | --- | 1.3 | --- | 12.4 |
| ††White Middlings | 7982 | 5599 | C. A. Meier, Sullivan | 12.0 | 2.5 | 1.3 | 12.0 | 12.4 |
| White Middlings | 8390 | 7231 | Manufacturers | 10.3 | 1.2 | 1.5 | 12.5 | 12.2 |
| RED DOG FLOUR | | | | | | | | |
| Coppes Bros. & Zook, Nappanee, Ind. | | | | | | | | |
| Red Dog Flour (Branded "F") | 7610 | 6528 | Manufacturers | 9.3 | 2.7 | 2.9 | 14.0 | 14.3 |
| Red Dog Flour (Branded "F") | 7610 | 8305 | Manufacturers | 10.0 | 2.7 | 2.9 | 14.0 | 14.8 |
| Crocker, William G., Minneapolis, Minn. | | | | | | | | |
| William G. Crocker's Red Dog Flour | 2994 | 5374 | Colfax Grain Co., Colfax | 10.0 | 5.0 | 5.3 | 17.0 | 17.8 |
| Loughry Bros. Milling & Grain Company, Monticello, Ind. | | | | | | | | |
| Loughry's Red Dog Flour | 7731 | 7330 | Manufacturers | 11.1 | 3.5 | 3.5 | 16.0 | 15.4 |
| Washburn-Crosby Company, Minneapolis, Minn. | | | | | | | | |
| Red Dog Flour (Adrian) | 7233 | 8065 | Farmers Mill & Elevator Co., Columbia City | 8.8 | 4.0 | 6.0 | 16.0 | 20.8 |
| LOW GRADE FLOUR | | | | | | | | |
| *Low Grade Flour ³⁵ | --- | 7155 | Fountain Produce Co., Veedersburg | 11.9 | --- | 2.6 | --- | 15.3 |
| WHEAT MIDDINGS AND SCREENINGS | | | | | | | | |
| Acme-Evans Company, Indianapolis, Ind. | | | | | | | | |
| Acme Middlings and Screenings | 5590 | 5349 | Nixon & Van Deventer, Attica | 10.1 | 4.5 | 4.6 | 16.5 | 16.5 |
| Acme Middlings and Screenings | 5590 | 6155 | Dayton Grain & Lumber Co., Dayton | 9.5 | 4.5 | 4.0 | 16.5 | 16.0 |
| Acme Middlings and Screenings | 5590 | 7341 | Thorntown Grain Co., Thorntown | 10.7 | 4.5 | 4.9 | 16.5 | 16.4 |
| Acme Middlings and Screenings | 5590 | 7435 | S. W. McCormick, Waveland | 8.8 | 4.5 | 4.5 | 16.5 | 16.8 |
| Acme Middlings and Screenings | 5590 | 7489 | Colfax Grain Co., Colfax | 9.6 | 4.5 | 4.7 | 16.5 | 16.5 |
| Acme Middlings and Screenings | 5590 | 8106 | R. E. Hayes, Campbellsburg | 8.9 | 4.5 | 5.0 | 16.5 | 16.5 |
| Ashbrook Company, The J. S., Mattoon, Ill. | | | | | | | | |
| ††Wheat Middlings with Ground Screen- ings | 8531 | 7193 | F. S. Gregory, Washington | 9.6 | 4.0 | 5.3 | 14.0 | 16.6 |
| Wheat Middlings with Ground Screen- ings | 8531 | 7667 | Galbreath & Co., Cayuga | 9.4 | 4.0 | 5.0 | 14.0 | 17.0 |
| ††Wheat Middlings with Ground Screen- ings | 8531 | 7461 | I. Bunch, Linton | 9.6 | 4.0 | 4.4 | 14.0 | 18.0 |

* Not tagged

†† Not tagged. Labels furnished

³⁵ Manufacturer could not be ascertained

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|--------------|---|--------------------|---------------------|-------|-------------------------|-------|
| | Official | Inspection D | | | Guar-anteed | Found | Guar-anteed | Found |
| Badenoch Company, J. J., Chicago, Ill. J. J. Badenoch Co's Wheat Standard Middlings with Ground Screenings not exceeding Mill Run..... | 6220 | 6957 | Kellner & Callahan, Rensselaer..... | 9.5 | 5.0 | 5.8 | 15.0 | 17.0 |
| J. J. Badenoch Co's Wheat Standard Middlings with Ground Screenings not exceeding Mill Run..... | 6220 | 7557 | Hoosier Wholesale Grocery Co., South Bend..... | 8.2 | 5.0 | 5.9 | 15.0 | 15.6 |
| Bartlett Company, The J. E., Jackson, Mich. Standard Wheat Middlings and Screenings..... | 6814 | 5540 | Farmers Grain Co., Markle..... | 9.3 | 4.5 | 4.5 | 13.5 | 16.5 |
| Bernet, Craft & Kauffman Milling Company, St. Louis, Mo. Wheat Middlings and Screenings..... | 5791 | 7706 | John Crum, Milan..... | 8.6 | 4.9 | 4.6 | 17.2 | 16.9 |
| Big Diamond Mills Company, Minneapolis, Minn. "Big Diamond Standard Middlings" and Screenings..... | 7059 | 5711 | J. H. Menke, Richmond..... | 8.8 | 4.2 | 5.1 | 14.6 | 16.4 |
| "Big Diamond Standard Middlings" and Screenings..... | 7059 | 7909 | J. H. Menke, Richmond..... | 8.4 | 4.2 | 5.4 | 14.6 | 17.3 |
| Bloomington Milling Company, The, Bloomington, Ind. †Middlings & Screenings..... | 8447 | 6134 | Manufacturer..... | 9.4 | 4.0 | 5.2 | 14.0 | 15.2 |
| Brook Flour & Feed Mill, Brook, Ind. ††Rising Sun Middlings & Ground Screenings..... | 8930 | 7773 | G. E. Vest, Brook..... | 9.9 | 4.0 | 5.4 | 14.0 | 16.1 |
| Brose, George, Evansville, Ind. Wheat Middlings and Screenings..... | 6854 | 6810 | Manufacturers..... | 9.8 | 3.8 | 3.8 | 15.5 | 15.6 |
| Wheat Middlings and Screenings..... | 6854 | 7825 | S. M. Heard, Evansville..... | 8.2 | 3.8 | 4.1 | 15.5 | 17.6 |
| Wheat Middlings and Screenings..... | 6854 | 7878 | Manufacturers..... | 9.0 | 3.8 | 4.3 | 15.5 | 17.1 |
| Butler & Company, Edw. J., Chicago, Ill. Wheat Flour Middlings and Screenings..... | 8347 | 7204 | D. A. Rumpel, Berne..... | 9.8 | 4.0 | 5.8 | 14.0 | 16.7 |
| ††Standard Middlings & Screenings..... | 8348 | 5950 | Crabbs Reynolds Taylor Co., Reynolds..... | 10.1 | 4.0 | 5.2 | 14.0 | 17.1 |
| Cannelton Flour Mills, Cannelton, Ind. Ship & Wheat Screenings..... | 2589 | 5803 | Manufacturers..... | 10.5 | 4.0 | 4.2 | 14.0 | 16.4 |
| Ship & Wheat Screenings..... | 2589 | 8215 | Manufacturers..... | 10.1 | 4.0 | 4.1 | 14.0 | 15.1 |
| Chicago Heights Oil Mfg. Co., Chicago, Ill. "Prize" Standard Middlings and Screenings..... | 7006 | 5399 | Watkins & Cripe, Lincoln..... | 8.6 | 4.0 | 5.5 | 15.0 | 16.6 |
| "Prize" Standard Middlings and Screenings..... | 7006 | 5934 | I. L. Carter & Son, Upland..... | 9.1 | 4.0 | 4.9 | 15.0 | 15.8 |
| "Prize" Standard Middlings and Screenings..... | 7006 | 7377 | W. H. Meloy, Argos..... | 9.9 | 4.0 | 5.1 | 15.0 | 15.4 |
| "Prize" Standard Middlings and Screenings ³⁶ | 7006 | 8241 | Butler Milling Co., Butler..... | 9.0 | 4.0 | 6.3 | 15.0 | 33.0 |
| Columbia City Mill & Elevator Company, Columbia City, Ind. Wheat Middlings & Ground Screenings..... | 6990 | 8067 | Farmers Mill & Elevator Co., Columbia City..... | 9.1 | 2.8 | 3.0 | 13.0 | 15.0 |
| Coppes Bros. & Zook, Nappanee, Ind. Middlings & Ground Wheat Screenings..... | 7561 | 5952 | Beach & Simmers, Albany..... | 9.4 | 4.0 | 4.3 | 15.3 | 15.8 |
| Middlings & Ground Wheat Screenings..... | 7561 | 8111 | Benj. Noftsger, Rochester..... | 9.1 | 4.0 | 4.6 | 15.3 | 16.8 |
| Middlings & Ground Wheat Screenings..... | 7561 | 8304 | Manufacturers..... | 9.5 | 4.0 | 4.1 | 15.3 | 16.7 |
| Crocker, William G., Minneapolis, Minn. Wheat Flour Middlings with Ground Screenings not exceeding Mill Run..... | 7238 | 5375 | Colfax Grain Co., Colfax..... | 9.4 | 4.0 | 5.1 | 15.0 | 17.8 |

† Before registration

†† Not tagged. Labels furnished

³⁶ Wrong label attached. Label 6351 furnished.
Sample is linseed meal

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Deutsch & Sickert Company, Milwaukee, Wis. Eagle Wheat Standard Middlings with Ground Screenings ----- | 7188 | 6805 | W. A. Browning Milling Co., Evansville ----- | 10.9 | 5.0 | 4.8 | 14.0 | 16.3 |
| Dickinson Company, The Albert, Chicago, Ill. Wheat Standard Middlings with Ground Screenings not to exceed Mill Run ----- | 5840 | 5607 | Farmers Elevator Co., Morocco----- | 9.7 | 5.0 | 4.9 | 15.0 | 16.1 |
| Wheat Standard Middlings with Ground Screenings not to exceed Mill Run ----- | 5840 | 7295 | Griner & Son, Middlebury----- | 9.2 | 5.0 | 4.9 | 15.0 | 16.6 |
| Wheat Standard Middlings with Ground Screenings not to exceed Mill Run ----- | 5840 | 8309 | C. L. Fisher & Co., Bremen---- | 8.7 | 5.0 | 5.5 | 15.0 | 16.5 |
| Flour Middlings with Ground Wheat Screenings not to exceed Mill Run---- | 6944 | 6350 | McMahan Bros., Valparaiso---- | 9.1 | 4.5 | 5.2 | 15.5 | 16.8 |
| Eagle Roller Mill Company, New Ulm, Minn. Wheat Middlings with Ground Screen- ings not exceeding Mill Run----- | 6687 | 6628 | Erie Elevator, Rochester----- | 9.6 | 4.5 | 5.1 | 15.4 | 15.4 |
| Early & Daniel Company, The, Cincinnati, Ohio Middlings & Screenings ----- | 7274 | 7062 | John Crum, Milan----- | 10.2 | 4.0 | 4.2 | 15.0 | 17.0 |
| Eckart Milling Company, B. A., Chicago, Ill. Middlings with Ground Screenings not exceeding Mill Run ----- | 5400 | 6227 | J. R. Starr, Winamac ----- | 9.3 | 4.0 | 4.5 | 14.0 | 17.0 |
| Middlings with Ground Screenings not exceeding Mill Run ----- | 5400 | 6375 | A. Smith & Co., Sheridan----- | 9.6 | 4.0 | 4.9 | 14.0 | 16.5 |
| Middlings with Ground Screenings not exceeding Mill Run ----- | 5400 | 7291 | Wolfe & Bevington, Shipshewana ----- | 9.9 | 4.0 | 4.7 | 14.0 | 15.6 |
| Edinger & Company, Louisville, Ky. Wheat Middlings and Wheat Screen- ings ----- | 7206 | 5851 | W. D. Hurn Milling Co., New Salisbury ----- | 10.2 | 4.5 | 4.2 | 15.5 | 17.1 |
| Wheat Middlings and Wheat Screen- ings ----- | 7206 | 6733 | O. L. Cauble, Pekin ----- | 9.8 | 4.5 | 4.6 | 15.5 | 16.1 |
| Everett, Aughenbaugh & Company, Waseca, Minn. E-A-CO Wheat Middlings and Ground Screenings ----- | 5440 | 5376 | Vandalla Elevator Co., Colfax----- | 10.3 | 3.0 | 4.9 | 15.0 | 17.0 |
| Farmers Mill & Elevator Company, The, Columbia City, Ind. ††Wheat Middlings & Screenings----- | 8952 | 8270 | Manufacturers ----- | 9.4 | 2.5 | 4.0 | 12.0 | 14.8 |
| Fisher Bros., Evansville, Ind. Wheat Middlings and Screenings----- | 8715 | 7841 | Manufacturers ----- | 10.1 | 4.0 | 5.3 | 14.0 | 16.0 |
| Fyke Milling Company, La Grange, Ind. Wheat Middlings & Screenings----- | 6422 | 7305 | Manufacturers ----- | 9.5 | 3.5 | 4.0 | 13.5 | 13.6 |
| Garland Milling Company, Greensburg, Ind. Garland Middlings & Screenings----- | 7281 | 7854 | Manufacturers ----- | 9.5 | 4.3 | 4.5 | 16.5 | 17.1 |
| Goshen Milling Company, The, Goshen, Ind. Wheat Middlings and Ground Wheat Screenings ----- | 7471 | 6523 | Manufacturers ----- | 9.9 | 3.2 | 4.9 | 13.5 | 15.4 |
| Wheat Middlings and Ground Wheat Screenings ----- | 7471 | 8128 | Manufacturers ----- | 9.5 | 3.2 | 4.4 | 13.5 | 16.1 |

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Hales & Edwards Company, Chicago, Ill. Wheat Middlings "With Screenings not exceeding Mill Run" ----- | 7643 | 5347 | Fred Holtz, Williamsport----- | 10.3 | 3.5 | 5.2 | 14.0 | 16.5 |
| Haynes Milling Company, The, Portland, Ind. Haynes Special Mixed Feed ----- | 7894 | 5955 | Manufacturers ----- | 9.4 | 3.5 | 3.3 | 14.5 | 15.4 |
| Home Mill & Grain Company, Mt. Vernon, Ind. Wheat Middlings & Screenings ----- | 7686 | 6890 | Manufacturers ----- | 9.4 | 4.0 | 4.1 | 16.0 | 15.9 |
| Wheat Middlings & Screenings ----- | 7686 | 7978 | Clint Stroud, Mt. Vernon----- | 9.4 | 4.0 | 5.7 | 16.0 | 17.6 |
| Hubbard Milling Company, Mankato, Minn. Standard Middlings & Ground Screen- ings ----- | 5447 | 7717 | F. A. Finch & Co., Hillsboro--- | 9.1 | 5.1 | 6.0 | 14.5 | 16.7 |
| Standard Fine Middlings & Ground Screenings ----- | 8538 | 6958 | Iroquois Roller Mills, Rensselaer | 9.7 | 5.0 | 6.3 | 16.0 | 16.9 |
| Hunter-Robinson-Wenz Milling Company, St. Louis, Mo. Middlings and Screenings ----- | 5220 | 6157 | Stiefel & Levy, Kimmel----- | 11.1 | 4.0 | 2.9 | 15.0 | 15.8 |
| Middlings and Screenings ----- | 5220 | 8358 | Marengo Milling Co., Marengo--- | 9.4 | 4.0 | 3.8 | 15.0 | 15.4 |
| Igleheart Bros., Evansville, Ind. Pure Wheat Middlings & Screenings not exceeding Mill Run ----- | 5772 | 5679 | W. N. Erwin, Inglesfield----- | 9.3 | 5.0 | 4.2 | 16.0 | 16.1 |
| Pure Wheat Middlings & Screenings not exceeding Mill Run ----- | 5772 | 6754 | Ballard & Magenheimer, Haubstadt ----- | 8.8 | 5.0 | 4.2 | 16.0 | 15.4 |
| Pure Wheat Middlings & Screenings not exceeding Mill Run ³⁷ ----- | 5772 | 6867 | P. Reising & Sons, Poseyville--- | 8.9 | 5.0 | 4.5 | 16.0 | 16.1 |
| Pure Wheat Middlings & Screenings not exceeding Mill Run ----- | 5772 | 6938 | W. N. Erwin, Inglesfield----- | 8.4 | 5.0 | 4.5 | 16.0 | 17.8 |
| Pure Wheat Middlings & Screenings not exceeding Mill Run ----- | 5772 | 7895 | P. Reising & Sons, Poseyville--- | 8.8 | 5.0 | 5.1 | 16.0 | 17.3 |
| Imperial Mills, The, Cambridge City, Ind. Wheat Middlings and Ground Screen- ings ----- | 7592 | 7943 | Manufacturers ----- | 10.4 | 3.7 | 4.5 | 14.0 | 16.1 |
| Interstate Feed Association, Detroit, Mich. Interstate Standard Middlings and Screenings ----- | 8183 | 7097 | Geneva Milling & Grain Co., Geneva ----- | 10.4 | 5.0 | 5.1 | 14.0 | 16.4 |
| Judson Creamery & Produce Company, North Judson, Ind. Judson Wheat Middlings and Screen- ings ----- | 8496 | 6225 | Miller & Dilts, Winamac----- | 9.9 | 4.0 | 4.3 | 14.5 | 16.5 |
| Kansas Flour Mills Company, Wichita, Kansas Standard Shorts & Wheat Screenings-- | 7886 | 7004 | Putmann Hdw. Co., New Point--- | 10.6 | 4.2 | 5.1 | 16.0 | 17.5 |
| Kaw Milling Company, The, Topeka, Kansas Kaw Kaw Shorts & Ground Screen- ings not to exceed 5% ----- | 8304 | 7515 | Sturgeon Grain & Coal Co., Muncie ----- | 10.0 | 4.0 | 4.4 | 17.0 | 17.9 |
| Kehlor Flour Mills Company, St. Louis, Mo. Rex Middlings and Ground Screenings-- | 6682 | 5464 | Crabbs Reynolds Taylor Co., Linden ----- | 11.2 | 4.0 | 4.2 | 16.0 | 16.2 |

³⁷ Conflicting guarantees. Withdrawn

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Kemper Mill & Elevator Company, Kansas City, Mo. Crescent Middlings with Ground Screenings ----- | 6028 | 7719 | Flem Van Meter, Jasonville ----- | 8.7 | 4.2 | 5.3 | 16.0 | 18.7 |
| Carnation Gray Middlings and Screen- ings not exceeding Mill Run ----- | 7325 | 5386 | Probst & Kassebaum, Indianapolis ----- | 9.2 | 4.3 | 4.4 | 16.0 | 16.0 |
| La Grange Mills, Red Wing, Minn. Fine Middlings with Ground Screen- ings not exceeding Mill Run ----- | 8604 | 7188 | O. Gandy & Co., Mentone ----- | 11.1 | 5.0 | 5.4 | 15.5 | 16.5 |
| Fine Middlings with Ground Screen- ings not exceeding Mill Run ----- | 8604 | 8056 | O. Gandy & Co., Mentone ----- | 9.6 | 5.0 | 5.7 | 15.5 | 18.6 |
| Little Crow Milling Company, Warsaw, Ind. Wheat Middlings & Screenings ----- | 7284 | 8061 | Manufacturers ----- | 9.1 | 3.0 | 4.6 | 13.0 | 17.6 |
| Loughry Bros. Milling & Grain Company, Monticello, Ind. Loughry's Wheat Middlings and Screenings ----- | 6170 | 7328 | Manufacturers ----- | 11.0 | 4.0 | 4.2 | 14.0 | 15.4 |
| Louisville Milling Company, Louisville, Ky. Wheat Shorts with Ground Screen- ings not exceeding Mill Run ----- | 6176 | 5754 | Charlestown Milling Co., Charlestown ----- | 9.0 | 4.0 | 4.4 | 15.0 | 16.3 |
| Wheat Shorts with Ground Screen- ings not exceeding Mill Run ----- | 6176 | 8320 | T. A. Pass, Sellarsburg ----- | 10.6 | 4.0 | 4.0 | 15.0 | 15.8 |
| Lyon & Greenleaf Company, Ligonier, Ind. Wheat Middlings and Screenings ----- | 8003 | 7507 | Manufacturers ----- | 10.1 | 4.0 | 4.3 | 14.0 | 16.0 |
| Mallinson, Charles L., Evansville, Ind. Wheat Shorts & Ground Screenings not exceeding Mill Run ----- | 7364 | 6850 | Manufacturer ----- | 9.7 | 4.0 | 4.2 | 14.0 | 14.6 |
| Marshall Milling Company, Marshall, Minn. †† Shorts and Screenings not exceeding Mill Run ----- | 6396 | 5359 | Hurst & Co., Indianapolis ----- | 8.9 | 5.0 | 4.6 | 17.0 | 17.3 |
| Shorts and Screenings not exceeding Mill Run ----- | 6396 | 6379 | Ed. B. Murphy, Carmel ----- | 10.2 | 5.0 | 5.3 | 17.0 | 16.2 |
| Shorts and Screenings not exceeding Mill Run ----- | 6396 | 7082 | Chas. W. Jessup, Madison ----- | 9.8 | 5.0 | 5.2 | 17.0 | 16.9 |
| Mayflower Mills, Fort Wayne, Ind. Wheat Middlings with Ground Screen- ings not exceeding Mill Run ----- | 8170 | 8103 | Farmers Elevator Co., Laketon ----- | 9.3 | 4.0 | 5.1 | 14.0 | 15.7 |
| Milford Grain & Milling Company, Milford, Ind. Wheat Middlings & Ground Screenings ----- | 8480 | 8268 | Manufacturers ----- | 9.1 | 3.5 | 4.8 | 14.0 | 16.8 |
| Miller Flour & Feed Company, The Wesley, South Bend, Ind. Wheat Middlings & Screenings ----- | 6483 | 7539 | Manufacturers ----- | 9.6 | 4.0 | 5.6 | 14.0 | 16.0 |
| Mosher & Company, A. B., Columbia City, Ind. †† Wheat Middlings & Screenings ----- | 8483 | 6162 | J. L. Keisler & Sons, Columbia City ----- | 10.4 | 3.0 | 5.1 | 13.0 | 16.1 |
| Muller Bros. Milling Company, Ferdinand, Ind. Wheat Shorts and Screenings ----- | 8448 | 8219 | A. Graves Sons, Tell City ----- | 9.4 | 4.0 | 4.1 | 14.0 | 15.8 |
| National Feed Company, St. Louis, Mo. Wheat Middlings & Ground Screenings ----- | 7349 | 6960 | Pickens & Brengle, Orleans ----- | 10.6 | 4.0 | 3.1 | 16.0 | 15.7 |
| Wheat Middlings & Ground Screenings ----- | 7349 | 7283 | Crabbs Reynolds Taylor Co., Lafayette ----- | 9.4 | 4.0 | 3.2 | 16.0 | 16.5 |

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1913
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Newsome Feed & Grain Company, Pittsburgh, Pa. *Wheat Middlings ----- | ---- | 7387 | Purdue University, Lafayette--- | 8.5 | --- | 4.9 | --- | 16.5 |
| Noblesville Milling Company, Noblesville, Ind. Noblesville Milling Co's Middlings & Ground Screenings not exceeding Mill Run ----- | 7306 | 6230 | W. G. Sweet, Royal Center----- | 10.3 | 4.0 | 4.5 | 15.0 | 15.8 |
| Northwestern Consolidated Milling Company, The, Minneapolis, Minn. Wheat Flour Middlings with Ground Screenings not exceeding Mill Run--- | 5498 | 6393 | Ed. Behnke, Gary ----- | 10.0 | 4.5 | 4.8 | 15.5 | 16.5 |
| "Wheat Standard Middlings with Ground Screenings not exceeding Mill Run" ----- | 6394 | 7521 | Muncie Oil & Coal Co., Muncie- | 8.9 | 4.5 | 6.1 | 15.0 | 16.6 |
| Phoenix Flour Mill, Evansville, Ind. Wheat Middlings and Ground Screen- ings ----- | 6856 | 5814 | American Cooperative Assoc., Boonville ----- | 10.1 | 4.0 | 4.2 | 15.5 | 16.2 |
| Wheat Middlings and Ground Screen- ings ³⁸ ----- | 6856 | 5818 | American Cooperative Assoc. Boonville ----- | 9.8 | 4.0 | 4.3 | 15.5 | 15.7 |
| Wheat Middlings and Ground Screen- ings ----- | 6856 | 7832 | Manufacturers ----- | 9.5 | 4.0 | 4.4 | 15.5 | 16.2 |
| Pillsbury Flour Mills Company, Minneapolis, Minn. ††Pillsbury's Wheat Standard "B" Mid- dlings with Ground Screenings not exceeding Mill Run ----- | 7134 | 5614 | McCray Grain Co., Kentland--- | 10.0 | 4.0 | 5.0 | 14.0 | 16.4 |
| *Pillsbury's Wheat Standard "B" Mid- dlings with Ground Screenings not exceeding Mill Run ----- | ---- | 7183 | Ogle Land Co., Linton----- | 9.7 | --- | 5.0 | --- | 16.4 |
| Pillsbury's Wheat Standard "B" Mid- dlings with Ground Screenings not exceeding Mill Run ----- | 7134 | 7294 | Griner & Son, Middlebury----- | 8.9 | 4.0 | 5.2 | 14.0 | 16.8 |
| Pillsbury's Wheat Standard "B" Mid- dlings with Ground Screenings not exceeding Mill Run ----- | 7134 | 7844 | Fisher Bros., Evansville----- | 9.8 | 4.0 | 5.2 | 14.0 | 16.4 |
| Poseyville Milling Company, The, Poseyville, Ind. Wheat Shorts & Screenings ----- | 7676 | 7893 | Manufacturers ----- | 9.1 | 4.0 | 5.3 | 14.0 | 17.7 |
| Rohm Bros., Rockville, Ind. Shorts and Screenings Product ----- | 8110 | 6109 | Manufacturers ----- | 11.1 | 4.0 | 4.0 | 15.0 | 16.2 |
| Shorts and Screenings Product ----- | 8110 | 7635 | Manufacturers ----- | 11.2 | 4.0 | 4.4 | 15.0 | 17.0 |
| Schilt, W. F., Bremen, Ind. Wheat Shorts & Screenings ----- | 6588 | 6530 | Manufacturers ----- | 10.2 | 3.8 | 4.7 | 14.0 | 15.8 |
| Wheat Shorts & Screenings ----- | 6588 | 8311 | Manufacturers ----- | 10.7 | 3.8 | 4.6 | 14.0 | 16.2 |
| Schultz-Baujan & Company, Beardstown, Ill. Sunbeam Middlings and Screenings--- | 5967 | 7027 | O. Nieman, Sunman ----- | 10.3 | 4.0 | 5.4 | 15.0 | 15.9 |
| Sheffield-King Milling Company, Minneapolis, Minn. "Fairybow" ----- | 7598 | 6535 | Wakarusa Milling Co., Wakarusa ----- | 9.3 | 5.0 | 5.8 | 15.0 | 15.9 |
| "Fairybow" ----- | 7598 | 7470 | J. R. Starr, Winamac----- | 9.4 | 5.0 | 5.1 | 15.0 | 17.2 |
| "Whitehope" ----- | 7600 | 7469 | J. R. Starr, Winamac----- | 9.0 | 4.5 | 5.3 | 16.0 | 17.7 |
| Standart-Tilton Milling Company, St. Louis, Mo. Wheat Middlings with Screenings Not Exceeding Mill Run ----- | 7013 | 5844 | Thomas & Hickman, Corydon--- | 9.7 | 4.0 | 4.6 | 15.0 | 16.0 |
| Wheat Middlings with Screenings Not Exceeding Mill Run ----- | 7013 | 7480 | B. I. Holser & Co., Walkerton- | 8.0 | 4.0 | 4.5 | 15.0 | 17.3 |

* Not tagged

†† Not tagged. Labels furnished

³⁸ Misbranded. Relabeled No. 2253

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Star & Crescent Milling Company, Chicago, Ill. | | | | | | | | |
| ††Star Middlings with Ground Screen- ings not exceeding Mill Run..... | 5376 | 5716 | Indiana School for Feeble Minded Youth, Ft. Wayne..... | 9.4 | 4.0 | 5.0 | 15.0 | 16.8 |
| Star Middlings with Ground Screen- ings not exceeding Mill Run..... | 5376 | 6264 | Hamlet Grain Co., Hamlet..... | 9.1 | 4.0 | 5.6 | 15.0 | 16.8 |
| Star Middlings with Ground Screen- ings not exceeding Mill Run..... | 5376 | 6458 | Roper & Brown, Hobart..... | 10.1 | 4.0 | 4.9 | 15.0 | 16.5 |
| Star Middlings with Ground Screen- ings not exceeding Mill Run..... | 5376 | 7912 | Powell & Co., Fountain City.. | 9.6 | 4.0 | 4.7 | 15.0 | 16.6 |
| Star Middlings with Ground Screen- ings not exceeding Mill Run..... | 5376 | 7996 | Simon J. Carroll, Bunker Hill.. | 9.5 | 4.0 | 4.8 | 15.0 | 16.9 |
| ††Star Middlings with Ground Screen- ings not exceeding Mill Run..... | 5376 | 8383 | F. O. Underhill, Greensfork.... | 8.9 | 4.0 | 4.6 | 15.0 | 16.2 |
| Stokes Milling Company, Watertown, So. Dak. | | | | | | | | |
| Country Wheat Middlings and Screen- ings Not Exceeding Mill Run..... | 8492 | 6643 | Prater-Mottier Co., Terre Haute | 9.5 | 5.5 | 4.9 | 15.9 | 17.1 |
| Suckow Company, Franklin, Ind. | | | | | | | | |
| Middlings and Screenings | 7375 | 6563 | Manufacturers | 9.0 | 3.5 | 4.6 | 14.0 | 16.7 |
| Middlings and Screenings | 7375 | 7750 | Manufacturers | 9.2 | 3.5 | 4.8 | 14.0 | 17.3 |
| Taylor-Hitz Company, Madison, Ind. | | | | | | | | |
| Taylor-Hitz Co's Middlings and Screenings | 6313 | 5433 | Manufacturers | 9.5 | 3.7 | 4.4 | 14.0 | 16.2 |
| Tranchant & Fennell Co., Osborn, Ohio | | | | | | | | |
| **Noxall White Middlings containing Screenings not exceeding Mill Run... | -- | 6765 | Caser Fohl & Son, Cedar Grove | 9.6 | --- | 4.6 | --- | 16.0 |
| Trow Company, W., Madison, Ind. | | | | | | | | |
| Trow's Middlings & Screenings..... | 1972 | 5435 | Manufacturers | 9.5 | 4.5 | 4.5 | 16.0 | 16.1 |
| Trow's Middlings & Screenings..... | 1972 | 8152 | M. A. King, Madison..... | 9.8 | 4.5 | 4.3 | 16.0 | 16.0 |
| Valentine & Valentine, Franklin, Ind. | | | | | | | | |
| Middlings and Screenings | 7455 | 6558 | Manufacturers | 7.7 | 3.5 | 4.8 | 14.0 | 16.7 |
| Middlings and Screenings | 7455 | 7754 | Manufacturers | 9.0 | 3.5 | 4.3 | 14.0 | 16.9 |
| Valier & Spies Milling Company, St. Louis, Mo. | | | | | | | | |
| Valier's Wheat Middlings with Ground Wheat Screenings | 6157 | 6635 | Valier & Spies Milling Co., Terre Haute | 9.4 | 5.0 | 5.1 | 16.0 | 18.4 |
| Valier's Wheat Middlings with Ground Wheat Screenings | 6157 | 6672 | Kewanna Butter & Produce Co., Kewanna | 9.0 | 5.0 | 5.1 | 16.0 | 16.7 |
| Valier's Wheat Middlings with Ground Wheat Screenings | 6157 | 7616 | Hargrave Brothers, Russellville.. | 8.6 | 5.0 | 6.1 | 16.0 | 16.7 |
| Wagner-White Company, Inc., Jackson, Mich. | | | | | | | | |
| Middlings with Screenings Not to Ex- ceed Mill Run | 8855 | 8249 | Fremont Co-op. Assoc., Fremont | 8.4 | 4.5 | 5.6 | 14.0 | 19.2 |
| Washburn-Crosby Company, Minneapolis, Minn. | | | | | | | | |
| Washburn-Crosby Co's Wheat Stand- ard Middlings with Ground Screen- ings Not Exceeding Mill Run..... | 5465 | 7200 | Jesse Goshorn, Washington.... | 9.9 | 5.0 | 5.4 | 15.0 | 16.6 |
| Wheat Standard Middlings with Ground Screenings not exceeding Mill Run | 7230 | 5563 | D. R. Smith, Tipton..... | 11.1 | 4.0 | 5.2 | 14.0 | 15.9 |
| Wheat Standard Middlings with Ground Screenings not exceeding Mill Run | 7230 | 5896 | City Mills & Elevator, Winchester | 10.0 | 4.0 | 5.0 | 14.0 | 16.7 |
| ††Wheat Standard Middlings with Ground Screenings not exceeding Mill Run | 7230 | 6000 | Galbreath & Schriner, Cayuga.. | 10.6 | 4.0 | 4.4 | 14.0 | 16.5 |
| ††Wheat Standard Middlings with Ground Screenings not exceeding Mill Run | 7230 | 7013 | Ideal Milling & Grain Co., Ridgeville | 10.6 | 4.0 | 5.1 | 14.0 | 16.5 |

** Not registered

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Washburn-Crosby Company, Minneapolis, Minn. | | | | | | | | |
| Wheat Standard Middlings with Ground Screenings not exceeding Mill Run ----- | 7230 | 7487 | Vandalia Elevator Co., Colfax | 9.2 | 4.0 | 5.1 | 14.0 | 18.9 |
| Wheat Standard Middlings with Ground Screenings not exceeding Mill Run ----- | 7230 | 7730 | Crabbs Reynolds Taylor Co., Linden ----- | 9.4 | 4.0 | 5.1 | 14.0 | 18.1 |
| Wheat Standard Middlings with Ground Screenings not exceeding Mill Run ----- | 7230 | 7914 | Powell & Co., Fountain City--- | 8.8 | 4.0 | 5.9 | 14.0 | 17.0 |
| Yoder, Marion J., Middlebury, Ind. | | | | | | | | |
| †Wheat Middlings and Ground Wheat Screenings ----- | 8783 | 7439 | Manufacturer ----- | 9.3 | 3.7 | 4.4 | 14.0 | 14.8 |
| Wheat Middlings and Ground Wheat Screenings ----- | 8783 | 8125 | Manufacturer ----- | 9.8 | 3.7 | 4.4 | 14.0 | 14.7 |
| Zillak & Schafer Milling Company, Haubstadt, Ind. | | | | | | | | |
| Wheat Shorts and Ground Screenings.. | 7215 | 5654 | Manufacturers ----- | 9.7 | 4.5 | 4.4 | 16.5 | 16.1 |
| Wheat Shorts and Ground Screenings.. | 7215 | 6749 | Manufacturers ----- | 10.2 | 4.5 | 4.7 | 16.5 | 16.6 |
| Wheat Shorts and Ground Screenings.. | 7215 | 7973 | Manufacturers ----- | 9.3 | 4.5 | 5.2 | 16.5 | 17.2 |
| MIXED FEED: WHEAT BRAN AND WHEAT MIDDLINGS | | | | | | | | |
| Acme Milling Company, The, Aurora, Ind. | | | | | | | | |
| Bran & Middlings ----- | 970 | 5453 | Manufacturers ----- | 9.6 | 3.9 | 4.6 | 14.2 | 15.2 |
| Bran & Middlings ----- | 970 | 7662 | Manufacturers ----- | 9.5 | 3.9 | 4.5 | 14.2 | 16.0 |
| Bachman, Valentine, Indianapolis, Ind. | | | | | | | | |
| Bachman's Cleaned Wheat Product.... | 6950 | 6541 | Manufacturer ----- | 9.6 | 3.7 | 4.6 | 16.0 | 15.8 |
| Bachman's Cleaned Wheat Product.... | 6950 | 7743 | Manufacturer ----- | 9.2 | 3.7 | 4.5 | 16.0 | 15.4 |
| Brizius Company, The Chas. W., Newburgh, Ind. | | | | | | | | |
| Eagle Mixed Feed ----- | 5927 | 6901 | Manufacturers ----- | 9.8 | 4.0 | 4.7 | 15.1 | 15.9 |
| Eagle Mixed Feed ----- | 5927 | 7794 | Chas. W. Brizius Co., Evansville | 9.6 | 4.0 | 4.7 | 15.1 | 16.9 |
| Burns, W. T., Rising Sun, Ind. | | | | | | | | |
| Mixed Feed ----- | 7768 | 7059 | Manufacturer ----- | 10.7 | 3.0 | 4.9 | 14.0 | 15.4 |
| Cauble & Dunlevy, Henryville, Ind. | | | | | | | | |
| Star Mixed Feed ----- | 5825 | 5868 | Manufacturers ----- | 9.9 | 4.0 | 3.7 | 14.0 | 14.7 |
| Cayuga Milling Company, Cayuga, Ind. | | | | | | | | |
| Cayuga Milling Co's Mixed Wheat Bran & Wheat Shorts ----- | 419 | 6005 | Manufacturers ----- | 10.4 | 3.9 | 4.3 | 14.0 | 16.2 |
| Cayuga Milling Co's Mixed Wheat Bran & Wheat Shorts ----- | 419 | 7666 | Manufacturers ----- | 10.2 | 3.9 | 3.9 | 14.0 | 15.9 |
| Clayton Milling Company, Clayton, Ind. | | | | | | | | |
| Mixed Feed ----- | 7665 | 6573 | Manufacturers ----- | 9.2 | 3.0 | 4.5 | 13.0 | 15.4 |
| Collamer Milling Company, Collamer, Ind. | | | | | | | | |
| Mixed Feed ----- | 7053 | 7146 | Manufacturers ----- | 9.6 | 3.5 | 4.0 | 14.0 | 14.8 |
| Mixed Feed ----- | 7053 | 8098 | Manufacturers ----- | 8.1 | 3.5 | 3.5 | 14.0 | 15.8 |
| Dubois Milling Company, Dubois, Ind. | | | | | | | | |
| Bran & Shorts ----- | 1192 | 5761 | Manufacturers ----- | 10.0 | 3.6 | 3.9 | 13.0 | 14.7 |
| Gaston Roller Mills, Gaston, Ind. | | | | | | | | |
| Wheat Bran & Middlings ----- | 5508 | 6334 | Manufacturers ----- | 9.3 | 3.0 | 4.2 | 13.0 | 16.5 |
| Heaton, E. H., Indianapolis, R. R. No. 12, Ind. | | | | | | | | |
| Mixed Feed ----- | 5981 | 7745 | Manufacturer ----- | 9.8 | 3.0 | 3.8 | 13.5 | 15.5 |

† Before registration

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Hosmer, Otis I., Doolittle Mills, Ind. Shipstuff ----- | 4820 | 5856 | Doolittle Mills, Doolittle Mills.--- | 9.3 | 3.5 | 3.8 | 14.0 | 14.7 |
| Hornung, J. M., Greensburg, Ind. Mixed Feed ³⁹ ----- | 416 | 7871 | Manufacturer ----- | 9.6 | 3.7 | 3.7 | 14.0 | 15.7 |
| Jay Grain Company, The, Mulberry Branch, Mulberry Ind. "Jay's" Wheat Bran & Shorts.----- | 7716 | 6423 | Jay Grain Co., Elwood ----- | 9.6 | 3.0 | 3.9 | 14.0 | 14.5 |
| Jones & Son, C. N., Wabash, Ind. Bran and Shorts ----- | 7733 | 5560 | Manufacturers ----- | 10.5 | 3.0 | 4.0 | 14.0 | 16.1 |
| Karnes, Lubert, Martinsburg, Ind. Red Wing Dairy Feed ----- | 527 | 5881 | Manufacturer ----- | 10.4 | 3.8 | 4.1 | 14.0 | 14.5 |
| Red Wing Dairy Feed ----- | 527 | 8031 | Manufacturer ----- | 9.4 | 3.8 | 4.2 | 14.0 | 16.3 |
| Katterjohn, A. F., Lynnville, Ind. Mixed Feed ----- | 6938 | 6930 | Manufacturer ----- | 9.5 | 4.0 | 5.0 | 14.0 | 17.1 |
| Lawrenceburg Roller Mills Company, Lawrenceburg, Ind. "Snowflake" Mixed Feed ----- | 8518 | 7704 | Milan Mill & Elevator, Milan.. | 8.7 | 4.3 | 4.3 | 15.2 | 16.4 |
| Martin & Martin, New Castle, Ind. Martin & Martin's Mixed Feed.----- | 4351 | 6545 | Manufacturers ----- | 10.0 | 3.5 | 4.1 | 13.0 | 15.8 |
| Martin & Martin's Mixed Feed.----- | 4351 | 8341 | Manufacturers ----- | 9.2 | 3.5 | 3.9 | 13.0 | 16.2 |
| Pyrmont Milling Company, Pyrmont, Ind. Pyrmont Ship ----- | 265 | 6215 | Manufacturers ----- | 10.4 | 4.0 | 3.5 | 14.0 | 15.1 |
| Schnell, Joseph, Schnellville, Ind. Shipstuff ----- | 7088 | 5847 | M. Schuppert & Sons, Depauw. | 10.6 | 2.5 | 4.3 | 12.0 | 14.5 |
| Smith, D. R., Tipton, Ind. Mixed Feed ----- | 4081 | 5561 | Manufacturer ----- | 10.3 | 3.0 | 4.2 | 14.0 | 15.7 |
| Smock & Caca, Noblesville, Ind. Bran and Shorts ----- | 1424 | 7620 | Manufacturers ----- | 9.7 | 3.8 | 3.8 | 14.5 | 15.4 |
| Star Roller Mills, The, Burlington, Ind. Mixed Feed ----- | 3627 | 5939 | Manufacturers ----- | 9.7 | 3.0 | 4.4 | 14.0 | 15.8 |
| Sullivan Mill & Elevator Company, Sullivan, Ind. Mixed Feed ----- | 6977 | 5590 | Manufacturers ----- | 10.3 | 3.4 | 4.0 | 12.0 | 15.1 |
| Swayzee Milling Company, Swayzee, Ind. Wheat Bran & Shorts ----- | 4475 | 6874 | Manufacturers ----- | 9.2 | 3.8 | 4.6 | 13.5 | 14.9 |
| Victoria Milling Company, The, Jasper, Ind. Mixed Feed ----- | 2608 | 5746 | Manufacturers ----- | 9.4 | 3.5 | 4.8 | 14.0 | 15.5 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDLLINGS AND SCREENINGS | | | | | | | | |
| Acme-Evans Company, Indianapolis, Ind. | | | | | | | | |
| Acme Feed ----- | 5588 | 5348 | Nixon & Van Deventer, Attica.. | 10.6 | 4.0 | 4.6 | 16.0 | 15.6 |
| Acme Feed ----- | 5588 | 5459 | Stafford Grain Co., Hope.----- | 9.4 | 4.0 | 4.1 | 16.0 | 15.7 |
| Acme Feed ----- | 5588 | 5910 | J. H. Williamson Co., Muncie.. | 10.2 | 4.0 | 4.6 | 16.0 | 16.0 |
| Acme Feed ----- | 5588 | 6404 | Jonesboro Milling Co., Jonesboro ----- | 9.9 | 4.0 | 4.5 | 16.0 | 15.2 |
| Acme Feed ----- | 5588 | 6707 | Hughes Lumber & Grain Co., Brooklyn ----- | 10.0 | 4.0 | 5.0 | 16.0 | 15.9 |
| Acme Feed ----- | 5588 | 6923 | Butcher & Duncan, Oakland City ----- | 9.4 | 4.0 | 4.5 | 16.0 | 14.7 |
| Acme Feed ----- | 5588 | 7143 | Brewer Co., Spencer ----- | 9.9 | 4.0 | 4.5 | 16.0 | 15.8 |

³⁹ Misbranded. Screenings present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Acme-Evans Company, Indianapolis, Ind. | | | | | | | | |
| Acme Feed ----- | 5588 | 7490 | Colfax Grain Co., Colfax----- | 9.1 | 4.0 | 4.3 | 16.0 | 16.1 |
| Acme Feed ----- | 5588 | 7676 | Branch Grain & Seed Co., Martinsville ----- | 9.4 | 4.0 | 4.3 | 16.0 | 15.5 |
| Acme Feed ----- | 5588 | 7713 | I. B. Clyne, Crawfordsville----- | 9.3 | 4.0 | 4.2 | 16.0 | 15.6 |
| Blanton Milling Company, Indianapolis, Ind. | | | | | | | | |
| The Blanton Mixed Feed ----- | 3805 | 7746 | E. H. Heaton, Indianapolis----- | 9.8 | 3.7 | 4.0 | 15.7 | 14.7 |
| Blish Milling Company, Seymour, Ind. | | | | | | | | |
| Bulls' Eye Mixed Feed ----- | 7939 | 5410 | Milan Milling Co., Milan----- | 9.8 | 3.2 | 4.3 | 14.2 | 15.9 |
| Bulls' Eye Mixed Feed ----- | 5176 | 6269 | New Albany Milling Co., New Albany ----- | 8.7 | 4.5 | 4.6 | 16.0 | 16.6 |
| Bulls' Eye Mixed Feed ----- | 8176 | 7063 | John Crum, Milan ----- | 10.5 | 4.5 | 4.6 | 16.0 | 15.9 |
| Bulls' Eye Mixed Feed ----- | 8176 | 8037 | Louis Hartman & Sons, New Albany ----- | 7.9 | 4.5 | 4.5 | 16.0 | 16.0 |
| Bulls' Eye Mixed Feed ----- | 8176 | 8285 | Scottsburg Elevator, Scottsburg | 8.4 | 4.5 | 4.1 | 16.0 | 15.9 |
| Boonville Milling Company, Boonville, Ind. | | | | | | | | |
| "A" Mixed Feed ----- | 2244 | 5809 | Manufacturers ----- | 9.7 | 3.8 | 4.2 | 14.0 | 15.4 |
| "A" Mixed Feed ----- | 2244 | 7882 | Manufacturers ----- | 8.9 | 3.8 | 3.9 | 14.0 | 15.7 |
| Boston Milling Company, Eckerty, Ind. | | | | | | | | |
| Bobbitt's Mixed Feed ----- | 3453 | 5860 | Manufacturers ----- | 8.8 | 3.7 | 4.2 | 14.0 | 14.9 |
| Bobbitt's Mixed Feed ----- | 3453 | 8360 | Manufacturers ----- | 9.8 | 3.7 | 4.3 | 14.0 | 15.8 |
| Corbin Milling Company, New Harmony, Ind. | | | | | | | | |
| Almira Mixed Feed ⁴⁰ ----- | 5418 | 6365 | Fuhrer-Ford Milling Co., New Harmony ----- | 9.3 | 3.9 | 4.2 | 13.3 | 13.6 |
| Decatur Roller Mills, Decatur, Ind. | | | | | | | | |
| Mixed Feed ----- | 5423 | 5418 | Fornax Milling Co., Decatur--- | 8.3 | 3.0 | 4.3 | 13.0 | 14.6 |
| Early & Daniel Company, The, Cincinnati, Ohio | | | | | | | | |
| Mixed Feed and Screenings----- | 8385 | 6761 | Weber Milling Co., Brookville.. | 9.2 | 3.0 | 4.5 | 14.0 | 15.9 |
| Eberts & Bro., North Vernon, Ind. | | | | | | | | |
| Eberts' Mix-Feed ----- | 2652 | 7005 | Putmann Hdw. Co., New Point.. | 10.7 | 4.0 | 3.9 | 15.5 | 16.2 |
| Eberts' Mix-Feed ----- | 2652 | 7312 | Manufacturers ----- | 9.0 | 4.0 | 4.0 | 15.5 | 14.5 |
| Eberts' Mix-Feed ----- | 2652 | 8207 | Manufacturers ----- | 10.5 | 4.0 | 4.2 | 15.5 | 15.9 |
| Eclipse Mill, The, Ramsey, Ind. | | | | | | | | |
| Eclipse Mixed Feed ----- | 3455 | 5850 | Manufacturers ----- | 10.8 | 3.5 | 3.8 | 13.5 | 14.0 |
| Edinger & Company, Louisville, Ky. | | | | | | | | |
| Wheat Mixed Feed & Wheat Screen- ings ----- | 7207 | 5835 | C. H. Ashworth, Crandall----- | 11.1 | 4.0 | 4.5 | 15.0 | 16.1 |
| Wheat Mixed Feed & Wheat Screen- ings ----- | 7207 | 6298 | Pickens & Brengle, Orleans----- | 9.1 | 4.0 | 4.6 | 15.0 | 15.0 |
| Wheat Mixed Feed & Wheat Screen- ings ----- | 7207 | 8318 | W. D. Hurn Milling Co., Corydon Junction ----- | 9.6 | 4.0 | 3.9 | 15.0 | 15.3 |
| Fuhrer-Ford Milling Company, Mt. Vernon, Ind. | | | | | | | | |
| Mixed Feed—Wheat Bran, Middlings and Screenings ----- | 2386 | 6892 | Manufacturers ----- | 9.6 | 3.9 | 5.2 | 14.0 | 17.2 |
| Mixed Feed—Wheat Bran, Middlings and Screenings ----- | 2386 | 7064 | Milan Milling Co., Milan----- | 10.7 | 3.9 | 4.2 | 14.0 | 15.3 |
| Mixed Feed—Wheat Bran, Middlings and Screenings ----- | 2386 | 7845 | Fisher Bros., Evansville----- | 9.0 | 3.9 | 4.6 | 14.0 | 15.4 |
| Mixed Feed—Wheat Bran, Middlings and Screenings ----- | 2386 | 8191 | John Hallowell, North Vernon-- | 8.4 | 3.9 | 4.4 | 14.0 | 17.0 |
| Hunter-Robinson-Wenz Milling Company, St. Louis, Mo. | | | | | | | | |
| Mixed Feed ----- | 5218 | 7456 | Bloomington Milling Co., Bloomington ----- | 8.6 | 4.0 | 4.3 | 15.0 | 16.3 |

⁴⁰ Withdrawn. Wrong label attached. Relabeled No. 4682

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Igleheart Bros., Evansville, Ind. | | | | | | | | |
| Pure Mixed Feed ----- | 5773 | 6753 | Ballard & Magenheimer, Haubstadt ----- | 9.3 | 4.5 | 4.4 | 15.5 | 15.5 |
| Pure Mixed Feed ----- | 5773 | 7918 | Ballard & Magenheimer, Haubstadt ----- | 8.2 | 4.5 | 3.8 | 15.5 | 15.8 |
| Lawrenceburg Roller Mills Company, Lawrenceburg, Ind. | | | | | | | | |
| Snowflake Mixed Feed ----- | 2275 | 5406 | Geo. Niemeyer & Son, Dillsboro. | 9.6 | 4.3 | 4.6 | 15.2 | 15.6 |
| Snowflake Mixed Feed ----- | 2275 | 6992 | Reimann & McCammon Co., Letts ----- | 9.1 | 4.3 | 5.5 | 15.2 | 16.4 |
| Golden Bull Mixed Feed ----- | 7112 | 5407 | Milan Mill & Elevator, Milan----- | 10.4 | 2.5 | 4.1 | 16.0 | 17.6 |
| Louisville Milling Company, Louisville, Ky. | | | | | | | | |
| Wheat Mixed Feed with Ground Screenings Not Exceeding Mill Run----- | 6333 | 5755 | Charlestown Milling Co., Charlestown ----- | 9.0 | 4.0 | 4.3 | 14.5 | 15.9 |
| Wheat Mixed Feed with Ground Screenings Not Exceeding Mill Run----- | 6333 | 6730 | J. A. Zink & Sons, Pekin----- | 9.5 | 4.0 | 4.4 | 14.5 | 15.4 |
| Wheat Mixed Feed with Ground Screenings Not Exceeding Mill Run----- | 6333 | 8323 | T. A. Pass, Sellarsburg ----- | 10.3 | 4.0 | 4.0 | 14.5 | 15.7 |
| Modoc Roller Mills & Elevator, Modoc, Ind. | | | | | | | | |
| Mixed Feed ----- | 7253 | 7902 | Manufacturers ----- | 9.0 | 3.0 | 4.2 | 13.0 | 15.9 |
| National Feed Company, St. Louis, Mo. | | | | | | | | |
| Mixed Feed or Mill Run with Screen- ings ----- | 5216 | 5373 | John Hallowell, North Vernon-- | 9.5 | 4.0 | 4.1 | 14.0 | 14.7 |
| Mixed Feed or Mill Run with Screen- ings ----- | 5216 | 7066 | Osgood Flour Mill, Osgood----- | 9.6 | 4.0 | 4.5 | 14.0 | 15.5 |
| Mixed Feed or Mill Run with Screen- ings ----- | 5216 | 7448 | Pickens & Brengle, Orleans----- | 8.0 | 4.0 | 4.7 | 14.0 | 16.9 |
| Mixed Feed or Mill Run with Screen- ings ----- | 5216 | 7792 | W. A. Browning Milling Co., Evansville ----- | 8.6 | 4.0 | 4.5 | 14.0 | 16.8 |
| Noblesville Milling Company, Noblesville, Ind. | | | | | | | | |
| N. M. Co's Mixed Feed ----- | 5243 | 5730 | Goodrich Bros. Hay & Grain Co., Westfield ----- | 9.1 | 4.0 | 5.1 | 16.0 | 16.0 |
| N. M. Co's Mixed Feed ----- | 5243 | 6826 | E. E. Cornthwaite, Cicero----- | 9.1 | 4.0 | 4.8 | 16.0 | 15.6 |
| N. M. Co's Mixed Feed ----- | 5243 | 7337 | McCorkle & Riley, Thorntown-- | 10.9 | 4.0 | 4.6 | 16.0 | 15.4 |
| N. M. Co's Mixed Feed ----- | 5243 | 7534 | Yorktown Lumber Co., Yorktown ----- | 9.6 | 4.0 | 4.5 | 16.0 | 16.5 |
| N. M. Co's Mixed Feed ----- | 5243 | 7901 | P. W. Millikan, Blountsville----- | 9.2 | 4.0 | 4.6 | 16.0 | 16.4 |
| N. M. Co's Goodcatch Feed ----- | 5351 | 6911 | Ashby & Ashby, Ladoga----- | 9.9 | 4.0 | 5.4 | 15.0 | 15.6 |
| Phoenix Flour Mill, Evansville, Ind. | | | | | | | | |
| Phoenix "A" Mixed Feed ----- | 2253 | 6806 | W. A. Browning Milling Co., Evansville ----- | 9.8 | 4.0 | 4.1 | 15.0 | 15.5 |
| Phoenix "A" Mixed Feed ----- | 2253 | 7879 | Manufacturers ----- | 9.0 | 4.0 | 4.0 | 15.0 | 17.3 |
| Phoenix "A" Mixed Feed ----- | 2253 | 8040 | John H. Shine & Co., New Albany ----- | 7.7 | 4.0 | 4.6 | 15.0 | 16.2 |
| Prater-Mottier Company, Terre Haute, Ind. | | | | | | | | |
| Praters Mixed Feed ----- | 8174 | 5692 | Manufacturers ----- | 9.0 | 4.0 | 4.3 | 14.5 | 15.9 |
| Praters Mixed Feed ----- | 8174 | 7144 | Worthington Grain Co., Worthington ----- | 10.0 | 4.0 | 4.6 | 14.5 | 15.2 |
| Princeton Milling Company, Princeton, Ind. | | | | | | | | |
| Star Brand Mixed Feed ----- | 1978 | 6714 | Manufacturers ----- | 9.5 | 3.5 | 3.5 | 13.0 | 15.3 |
| Star Brand Mixed Feed ----- | 1978 | 6939 | Manufacturers ----- | 9.6 | 3.5 | 3.5 | 13.0 | 15.2 |
| Puritan Mills, The, Medora, Ind. | | | | | | | | |
| Puritan Mixed Feed ----- | 8644 | 7449 | Manufacturers ----- | 9.4 | 3.6 | 4.0 | 14.0 | 15.5 |
| Shine & Company, John H., New Albany, Ind. | | | | | | | | |
| Star Feed ----- | 863 | 5783 | Mrs. John Bental, Jeffersonville | 9.8 | 4.0 | 4.2 | 14.0 | 16.1 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Sparks Milling Company, Terre Haute, Ind. | | | | | | | | |
| Wabash Mixed Feed ----- | 3011 | 5943 | Lemon Milling Co., Bedford---- | 9.8 | 3.5 | 4.3 | 14.0 | 15.4 |
| Wabash Mixed Feed ----- | 3011 | 7463 | S. A. Francis, Clay City----- | 8.8 | 3.5 | 4.7 | 14.0 | 16.0 |
| Wabash Mixed Feed ----- | 3011 | 7615 | Geo. Mathas & Son, Montezuma | 9.0 | 3.5 | 4.5 | 14.0 | 15.4 |
| Wabash Mixed Feed ----- | 3011 | 8085 | L. A. Walker, Bedford ----- | 8.8 | 3.5 | 4.0 | 14.0 | 15.2 |
| Thomas Milling Company, Marion, Ind. | | | | | | | | |
| Mixed Feed ----- | 8167 | 6366 | Manufacturers ----- | 9.7 | 3.8 | 4.1 | 14.0 | 15.4 |
| ††Mixed Feed ----- | 8167 | 7649 | G. W. Jones, Upland----- | 9.2 | 3.8 | 4.4 | 14.0 | 15.3 |
| ††Mixed Feed ----- | 8167 | 7652 | G. W. Jones, Upland----- | 8.4 | 3.8 | 4.9 | 14.0 | 15.9 |
| Valier & Spies Milling Company, St. Louis, Mo. | | | | | | | | |
| Valier's Mixed Feed ----- | 6127 | 6637 | Valier & Spies Milling Co., Terre Haute ----- | 9.8 | 4.0 | 4.8 | 15.0 | 16.5 |
| Valier's Mixed Feed ----- | 6127 | 7246 | Valier & Spies Milling Co., Terre Haute ----- | 9.1 | 4.0 | 4.6 | 15.0 | 16.6 |
| Valier's Mixed Feed ----- | 6127 | 7614 | Hargrave Bros., Russellville---- | 9.0 | 4.0 | 5.1 | 15.0 | 15.7 |
| Wallace Milling Company, The, Dale, Ind. | | | | | | | | |
| Wallace's Mixed Feed ----- | 172 | 5771 | Manufacturers ----- | 8.4 | 3.9 | 4.1 | 14.2 | 14.7 |
| Wallace's Mixed Feed ----- | 172 | 7881 | Cadick Elevator Co., Boonville---- | 8.8 | 3.9 | 4.0 | 14.2 | 15.8 |
| Wallace's Mixed Feed ----- | 172 | 7971 | Manufacturers ----- | 8.4 | 3.9 | 3.9 | 14.2 | 15.3 |
| Walton & Whisler, Atlanta, Ind. | | | | | | | | |
| A. Mixed Feed ----- | 7633 | 6090 | Manufacturers ----- | 11.1 | 3.0 | 3.4 | 14.0 | 14.9 |
| Washburn-Crosby Company, Minneapolis, Minn. | | | | | | | | |
| Wheat Mixed Feed with Ground Screenings not Exceeding Mill Run-- | 7231 | 6917 | Bainbridge Mill & Elevator Co., Bainbridge ----- | 9.5 | 4.0 | 5.0 | 14.0 | 15.7 |
| Ziliak & Schafer Milling Company, The, Haubstadt, Ind. | | | | | | | | |
| Ziliak's Mixed Feed ----- | 276 | 7849 | Manufacturers ----- | 8.3 | 3.7 | 4.3 | 14.0 | 14.6 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, SCREEN- INGS AND SALT | | | | | | | | |
| Akin-Erskine Milling Company, Evansville, Ind. | | | | | | | | |
| Mixed Feed ----- | 6047 | 5660 | Ohio Valley Seed Co., Evansville | 9.4 | 4.0 | 4.1 | 15.0 | 15.1 |
| Mixed Feed ----- | 6047 | 5825 | Louis Hartman & Sons, New Albany ----- | 11.5 | 4.0 | 3.9 | 15.0 | 15.1 |
| Mixed Feed ----- | 6047 | 6716 | R. P. Moore Milling Co., Princeton ----- | 9.4 | 4.0 | 4.1 | 15.0 | 14.7 |
| Mixed Feed ----- | 6047 | 7818 | Ohio Valley Seed Co., Evansville | 8.6 | 4.0 | 4.0 | 15.0 | 15.4 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, SCREEN- INGS AND RYE | | | | | | | | |
| Pearson, W. W., Upland, Ind. | | | | | | | | |
| Mixed Feed ⁴¹ ----- | 5953 | 6330 | Manufacturer ----- | 11.0 | 2.5 | 4.4 | 10.0 | 17.0 |
| Mixed Feed ⁴² ----- | 5953 | 6331 | Manufacturer ----- | 11.7 | 2.5 | 4.0 | 10.0 | 15.9 |
| Mixed Feed ⁴³ ----- | 5953 | 6332 | Manufacturer ----- | 13.2 | 2.5 | 4.7 | 10.0 | 14.7 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, SCREEN- INGS AND CLEANINGS | | | | | | | | |
| Garland Milling Company, Greensburg, Ind. | | | | | | | | |
| Garland Mixed Feed ----- | 7280 | 5447 | Westport Grain Co., Westport-- | 9.3 | 4.0 | 3.9 | 15.5 | 15.8 |
| Garland Mixed Feed ----- | 7280 | 6979 | Manufacturers ----- | 9.2 | 4.0 | 4.4 | 15.5 | 16.5 |
| Garland Mixed Feed ----- | 7280 | 7855 | Manufacturers ----- | 9.3 | 4.0 | 4.8 | 15.5 | 15.6 |

†† Not tagged. Labels furnished

⁴¹ Withdrawn. Misbranded. Relabeled with No.
8559⁴² Withdrawn. Misbranded. Relabeled with No.
8561⁴³ Withdrawn. Misbranded. Relabeled with No.
8560

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| MIXED FEED: WHEAT BRAN AND CORN BRAN | | | | | | | | |
| Acme Milling Company, The, Aurora, Ind. | | | | | | | | |
| Mxd Bran ----- | 2556 | 5434 | Manufacturers ----- | 8.5 | 3.7 | 4.3 | 13.6 | 14.7 |
| Mxd Bran ----- | 2556 | 7660 | Manufacturers ----- | 9.4 | 3.7 | 3.8 | 13.6 | 14.8 |
| Berne Milling Company, Berne, Ind. | | | | | | | | |
| Berne Milling Co's Wheat & Corn Bran ----- | 1117 | 6049 | Manufacturers ----- | 10.2 | 3.8 | 3.3 | 14.0 | 14.8 |
| Berne Milling Co's Wheat & Corn Bran ----- | 1117 | 7429 | Manufacturers ----- | 9.5 | 3.8 | 3.4 | 14.0 | 14.4 |
| Clark & Sons, C. G., Rushville, Ind. | | | | | | | | |
| Clark's Corn & Wheat Bran (Mixed) -- | 185 | 6786 | Manufacturers ----- | 8.4 | 3.7 | 4.6 | 14.0 | 14.3 |
| Clark's Corn & Wheat Bran (Mixed) -- | 185 | 7938 | Lewisville Elevator Co., Lewisville ----- | 9.5 | 3.7 | 4.2 | 14.0 | 15.9 |
| Coal City Milling Company, Coal City, Ind. | | | | | | | | |
| Coal City Mixed Bran ----- | 6001 | 7466 | Manufacturers ----- | 9.7 | 3.5 | 3.9 | 13.5 | 14.8 |
| Columbia City Mill & Elevator Company, The, Columbia City, Ind. | | | | | | | | |
| Mixed Bran ----- | 2701 | 6692 | Manufacturers ----- | 9.5 | 3.5 | 3.4 | 14.0 | 14.2 |
| Mixed Bran ----- | 2701 | 8066 | Farmers Mill & Elevator Co., Columbia City ----- | 8.4 | 3.5 | 4.1 | 14.0 | 15.4 |
| Haynes Milling Company, The, Portland, Ind. | | | | | | | | |
| Bran ----- | 4094 | 6834 | Manufacturers ----- | 8.9 | 3.5 | 4.4 | 15.2 | 14.3 |
| Imperial Mills, The, Cambridge City, Ind. | | | | | | | | |
| Mixed Bran ----- | 1752 | 7944 | Manufacturers ----- | 9.1 | 3.2 | 4.1 | 12.0 | 15.7 |
| Jamestown Milling Company, Jamestown, Ind. | | | | | | | | |
| Noxemall Bran ----- | 5656 | 5642 | Manufacturers ----- | 8.9 | 3.0 | 4.1 | 13.5 | 15.4 |
| Noxemall Bran ⁴⁴ ----- | 5656 | 7783 | Farmers Elevator Co., Jamestown ----- | 8.3 | 3.0 | 4.4 | 13.5 | 15.1 |
| Keplinger, Chas., Zanesville, Ind. | | | | | | | | |
| Mixed Bran ----- | 3486 | 6683 | Zanesville Roller Mills, Zanesville ----- | 9.4 | 3.5 | 4.1 | 14.0 | 15.0 |
| LaFayette Milling Company, The, LaFayette, Ind. | | | | | | | | |
| Mixed Bran ----- | 117 | 8115 | Manufacturers ----- | 10.1 | 4.0 | 3.7 | 14.0 | 14.5 |
| Naber & Company, Chas. F., Alexandria, Ind. | | | | | | | | |
| Mixed Bran ----- | 6574 | 6415 | Manufacturers ----- | 9.4 | 3.0 | 3.7 | 13.0 | 15.4 |
| Pennville Milling Company, Pennville, Ind. | | | | | | | | |
| Wheat Bran & Corn Bran ----- | 8029 | 6829 | Manufacturers ----- | 9.1 | 2.9 | 4.2 | 12.0 | 16.5 |
| Taylor-Hitz Company, Madison, Ind. | | | | | | | | |
| Bran ----- | 414 | 8192 | Manufacturers ----- | 7.6 | 3.7 | 4.3 | 14.0 | 13.8 |
| Uhl-Snyder Milling Company, Connersville, Ind. | | | | | | | | |
| Bran ----- | 5135 | 6739 | Manufacturers ----- | 9.2 | 3.5 | 6.2 | 14.0 | 14.1 |
| Wellington Milling Company, Anderson, Ind. | | | | | | | | |
| Wellington A. X. A. Mixed Bran ----- | 6225 | 6290 | Manufacturers ----- | 8.9 | 3.0 | 4.4 | 14.0 | 14.6 |

⁴⁴ Withdrawn. Wrong label attached

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|----------------------------------|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| MIXED FEED: WHEAT BRAN, CORN BRAN, RYE BRAN AND SCREENINGS | | | | | | | | |
| Starr Mills, South Bend, Ind. | | | | | | | | |
| Mixed Feed ----- | 6001 | 7300 | Manufacturers ----- | 8.6 | 3.0 | 4.1 | 14.0 | 14.4 |
| Mixed Feed ----- | 6001 | 7503 | Manufacturers ----- | 9.5 | 3.0 | 3.6 | 14.0 | 15.3 |
| MIXED FEED: WHEAT BRAN, CORN BRAN AND SCREEN- INGS | | | | | | | | |
| Anchor Milling Company, Rochester, Ind. | | | | | | | | |
| Mixed Feed ----- | 4214 | 6619 | Manufacturers ----- | 9.2 | 3.0 | 4.7 | 12.0 | 13.5 |
| Mixed Feed ----- | 4214 | 8114 | B. F. Seward, Rochester ----- | 10.3 | 3.0 | 4.1 | 12.0 | 14.3 |
| Barry, Russell, Crandall, Ind. | | | | | | | | |
| Mixed Feed ----- | 8421 | 8316 | Crandall Flouring Mill, Crandall | 9.3 | 3.0 | 4.0 | 13.0 | 14.7 |
| Bergenroth Bros., Troy, Ind. | | | | | | | | |
| Mixed Bran & Screenings ----- | 3442 | 8220 | Manufacturers ----- | 8.3 | 3.8 | 3.6 | 14.0 | 14.7 |
| Bock, Leonard, Argos, Ind. | | | | | | | | |
| Mixed Feed ----- | 2843 | 6677 | Manufacturer ----- | 9.6 | 3.7 | 3.9 | 14.0 | 13.4 |
| Cadick Milling Company, Grandview, Ind. | | | | | | | | |
| Bran and Screenings ----- | 7858 | 5799 | Manufacturers ----- | 9.6 | 3.8 | 3.8 | 15.0 | 14.7 |
| Bran and Screenings ----- | 7858 | 7880 | Cadick Elevator Co., Boonville | 8.5 | 3.8 | 3.7 | 15.0 | 15.0 |
| Cannelton Flour Mills, Cannelton, Ind. | | | | | | | | |
| Mixed Bran & Screenings ----- | 3427 | 5805 | Manufacturers ----- | 9.6 | 3.4 | 4.1 | 13.5 | 15.3 |
| Mixed Bran & Screenings ----- | 3427 | 8213 | Manufacturers ----- | 9.6 | 3.4 | 4.8 | 13.5 | 13.3 |
| Corydon Milling Company, Corydon, Ind. | | | | | | | | |
| "A" Mixed Feed ----- | 7109 | 5842 | Manufacturers ----- | 10.4 | 3.5 | 4.7 | 14.0 | 15.4 |
| Easley & Company, Wm., College Corner, Ohio | | | | | | | | |
| Mixed Feed ----- | 4254 | 5496 | Manufacturers ----- | 8.7 | 3.0 | 4.0 | 13.5 | 13.6 |
| Egloff Milling Company, Vincennes, Ind. | | | | | | | | |
| Wheat Bran, Ground Screenings and Corn Bran ----- | 6053 | 7224 | Manufacturers ----- | 9.4 | 3.5 | 3.7 | 14.0 | 14.2 |
| Farmers Mill & Elevator Company, The, Columbia City, Ind. | | | | | | | | |
| ††Mixed Bran & Screenings ----- | 8951 | 8271 | Manufacturers ----- | 7.5 | 3.0 | 3.9 | 13.0 | 16.3 |
| Fornax Milling Company, Decatur, Ind. | | | | | | | | |
| Fornax Mixed Feed ----- | 7200 | 6038 | Manufacturers ----- | 10.0 | 3.2 | 3.9 | 13.0 | 13.9 |
| Gross, L. J., Sandborn, Ind. | | | | | | | | |
| Mixed Feed ----- | 2911 | 8385 | Walker & Crane, Sandborn---- | 9.2 | 3.2 | 5.0 | 13.0 | 15.3 |
| Hartz & Carey Milling Company, Chrisney, Ind. | | | | | | | | |
| Bran and Screenings ----- | 8687 | 8222 | Manufacturers ----- | 9.7 | 3.8 | 4.7 | 14.0 | 15.4 |
| Hering & King, Shelbyville, R. R. No. 5, Ind. | | | | | | | | |
| Mixed Bran and Screenings ----- | 7219 | 7833 | E. R. Hering, Shelbyville ----- | 10.5 | 3.2 | 3.9 | 13.0 | 14.4 |
| Hibbits Mill Company, Muncie, Ind. | | | | | | | | |
| Mixed Feed ----- | 2835 | 5907 | Manufacturers ----- | 8.6 | 3.6 | 4.1 | 14.0 | 15.4 |
| Hurn Milling Company, W. D., New Salisbury, Ind. | | | | | | | | |
| Mixed Feed ----- | 7959 | 5855 | Manufacturers ----- | 10.9 | 3.5 | 4.6 | 13.0 | 14.7 |
| Mixed Feed ----- | 7959 | 8292 | Manufacturers ----- | 9.4 | 3.5 | 3.4 | 13.0 | 14.7 |

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---------------------------------|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Katterjohn, Q. F., Boonville, Ind. Katterjohn's Mixed Feed ----- | 2243 | 6902 | Manufacturer ----- | 9.8 | 4.0 | 4.7 | 13.5 | 15.0 |
| Kennedy Milling Company, The Geo. W., Shelbyville, Ind. Mixed Feed ----- | 2477 | 6985 | Manufacturers ----- | 9.9 | 3.5 | 4.4 | 13.5 | 16.1 |
| Klemm, Geo. J., Milton, Ind. Mixed Feed ----- | 3465 | 7946 | Manufacturer ----- | 9.5 | 3.5 | 4.0 | 13.0 | 15.2 |
| Muller Bros. Milling Company, Ferdinand, Ind. Wheat Bran, Corn Bran & Screenings | 6710 | 8289 | Manufacturers ----- | 8.2 | 3.5 | 4.4 | 14.0 | 14.8 |
| New Milling Company, The, Greenfield, Ind. Mixed Feed ----- | 2616 | 6553 | Manufacturers ----- | 9.1 | 3.8 | 3.7 | 14.0 | 16.8 |
| North Manchester Milling Company, North Manchester, Ind. Mixed Feed ----- | 4252 | 7160 | Manufacturers ----- | 10.2 | 3.0 | 3.7 | 11.5 | 15.1 |
| Mixed Feed ----- | 4252 | 8102 | Manufacturers ----- | 9.5 | 3.0 | 3.1 | 11.5 | 17.0 |
| Orleans Mill & Elevator Company, Orleans, Ind. Mixed Feed ----- | 7020 | 5980 | Manufacturers ----- | 8.6 | 3.4 | 4.1 | 12.5 | 14.8 |
| Mixed Feed ----- | 7020 | 8083 | Manufacturers ----- | 7.9 | 3.4 | 4.2 | 12.5 | 15.2 |
| Plainfield Milling Company, Plainfield, Ind. Bran & Screenings ----- | 2339 | 6078 | Manufacturers ----- | 9.3 | 3.5 | 4.7 | 14.0 | 14.7 |
| Bran & Screenings ----- | 2339 | 7544 | Manufacturers ----- | 8.9 | 3.5 | 4.2 | 14.0 | 15.5 |
| Poseyville Milling Company, The, Poseyville, Ind. Mixed Bran & Screenings ----- | 7677 | 6885 | Manufacturers ----- | 9.0 | 3.7 | 4.6 | 14.0 | 14.3 |
| Mixed Bran & Screenings ----- | 7677 | 7897 | Manufacturers ----- | 9.1 | 3.7 | 4.0 | 14.0 | 16.9 |
| Rockport Milling Company, The, Rockport, Ind. Bran & Screenings ----- | 2248 | 5798 | Manufacturers ----- | 9.6 | 3.8 | 4.5 | 13.3 | 13.4 |
| Bran & Screenings ----- | 2248 | 7890 | Manufacturers ----- | 8.4 | 3.8 | 4.0 | 13.3 | 14.8 |
| Salem Farmers Milling Company, Salem, Ind. Star Mixed Feed ----- | 3654 | 8107 | Manufacturers ----- | 8.0 | 3.5 | 3.8 | 13.5 | 14.7 |
| Silver Star Milling Company, Patrickburg, Ind. Mixed Feed ----- | 3621 | 7159 | E. S. Maegerlein, Patrickburg.. | 8.9 | 3.0 | 7.0 | 13.0 | 12.7 |
| Tell City Flouring Mills, Tell City, Ind. Bran & Screenings ----- | 5640 | 5800 | Manufacturers ----- | 9.5 | 4.0 | 3.8 | 14.0 | 14.9 |
| Bran & Screenings ----- | 5640 | 8217 | Manufacturers ----- | 8.0 | 4.0 | 4.0 | 14.0 | 15.2 |
| Thomas & Son, A. R., Markle, Ind. Wheat Bran with Corn Bran and Ground Screenings ----- | 6337 | 5542 | Manufacturers ----- | 8.5 | 3.5 | 3.5 | 14.0 | 15.3 |
| Union Roller Mills, West Harrison, Ind., Kiewit's Bran and Screenings ----- | 7544 | 6791 | Manufacturers ----- | 8.7 | 3.7 | 3.8 | 14.0 | 13.9 |
| Wabash Milling Company, Wabash, Ind. Summerton's Mixed Feed ----- | 5968 | 5556 | Manufacturers ----- | 9.9 | 3.0 | 3.8 | 13.0 | 14.9 |
| Waltz & Company, J. W., New Palestine, Ind. Mixed Feed ----- | 2923 | 6711 | Manufacturers ----- | 9.0 | 3.7 | 4.2 | 13.0 | 16.7 |
| Wright, John H., Clinton, Ind. Venus Bran & Screenings ----- | 7250 | 7238 | Manufacturer ----- | 9.6 | 3.5 | 4.7 | 14.0 | 16.0 |
| Venus Bran & Screenings ----- | 7250 | 7611 | Manufacturer ----- | 9.8 | 3.5 | 4.4 | 14.0 | 16.0 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---------------------|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS AND CORN BRAN | | | | | | | | |
| Banner Roller Mills, The, Mooreville, Ind. | | | | | | | | |
| Wheeler's Banner Mixed Feed ----- | 437 | 6087 | Manufacturers ----- | 10.6 | 3.9 | 4.0 | 14.0 | 15.4 |
| Wheeler's Banner Mixed Feed ----- | 437 | 7672 | Manufacturers ----- | 9.9 | 3.9 | 4.0 | 14.0 | 15.1 |
| Boldt & Son, Waynetown, Ind. | | | | | | | | |
| Mix Mill Feed ----- | 4170 | 5458 | Manufacturers ----- | 9.8 | 3.0 | 4.2 | 11.0 | 15.7 |
| Mix Mill Feed ----- | 4170 | 7715 | Manufacturers ----- | 9.4 | 3.0 | 4.2 | 11.0 | 16.1 |
| Mix Mill Feed ----- | 4170 | 8342 | Manufacturers ----- | 9.1 | 3.0 | 4.4 | 11.0 | 15.9 |
| Columbus Milling Company, Columbus, Ind. | | | | | | | | |
| A. Mixed Feed ----- | 8049 | 5478 | Manufacturers ----- | 10.2 | 3.0 | 4.4 | 13.5 | 14.9 |
| A. Mixed Feed ----- | 8049 | 6823 | Manufacturers ----- | 10.3 | 3.0 | 5.6 | 13.5 | 13.4 |
| Follett & Company, R. J., Carmel, Ind. | | | | | | | | |
| Mixed Feed ----- | 3163 | 6076 | Manufacturers ----- | 9.8 | 3.7 | 4.7 | 13.0 | 15.5 |
| Freed & Lewis, Campbellsburg, Ind. | | | | | | | | |
| Mixed Feed ----- | 6062 | 8105 | Manufacturers ----- | 9.0 | 3.0 | 4.2 | 13.0 | 14.9 |
| Gilman, S. B., Summitville, Ind. | | | | | | | | |
| Gilman's Mixed Feed ⁴⁵ ----- | 3216 | 6067 | Manufacturers ----- | 11.2 | 3.7 | 4.2 | 12.5 | 13.4 |
| Henline, M. S., Ossian, Ind. | | | | | | | | |
| Mixed Feed ----- | 6306 | 6690 | Manufacturer ----- | 9.5 | 2.5 | 3.9 | 12.5 | 14.9 |
| Mixed Feed ----- | 6806 | 7959 | Manufacturer ----- | 9.4 | 2.5 | 4.0 | 12.5 | 15.6 |
| Hollingsworth, S. P., Russiaville, Ind. | | | | | | | | |
| Hollingsworth Mixed Feed ⁴⁶ ----- | 7829 | 6708 | Manufacturer ----- | 9.9 | 3.8 | 4.2 | 14.0 | 16.6 |
| Semon, F. T., Vernon, Ind. | | | | | | | | |
| Semon's Mixed Feed ----- | 5631 | 8193 | Manufacturer ----- | 9.1 | 3.0 | 3.9 | 12.0 | 16.1 |
| St. Anthony Mill Company, St. Anthony, Ind. | | | | | | | | |
| Wheat Bran, Shorts & Corn Bran---- | 5262 | 5862 | Manufacturers ----- | 10.0 | 3.0 | 4.3 | 13.0 | 15.1 |
| Wheat Bran, Shorts & Corn Bran---- | 5262 | 7452 | Manufacturers ----- | 11.1 | 3.0 | 4.0 | 13.0 | 15.2 |
| Star Milling Company, The, Aurora, Ind. | | | | | | | | |
| Mixed Feed ----- | 2675 | 5450 | Manufacturers ----- | 9.0 | 4.0 | 4.5 | 13.5 | 14.9 |
| Starlight Milling Company, Borden, R. R. No. 1, Ind. | | | | | | | | |
| Mixed Feed ----- | 7794 | 8026 | Manufacturers ----- | 9.1 | 2.0 | 4.6 | 12.0 | 16.1 |
| Walker & Son, J. M., Middletown, Ind. | | | | | | | | |
| Walker's Mixed Feed ----- | 8163 | 6281 | Manufacturer ----- | 10.1 | 3.5 | 4.5 | 13.0 | 16.5 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, LOW GRADE FLOUR AND CORN BRAN | | | | | | | | |
| Hardin & Son, Ladoga, Ind. | | | | | | | | |
| Hardin & Son's Mill Feed ----- | 3482 | 6922 | Manufacturers ----- | 9.8 | 2.5 | 4.9 | 14.0 | 14.2 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, CORN BRAN AND DUST COLLECTOR BRAN | | | | | | | | |
| Thornburg Milling & Elevator Company, Martinsville, Ind. | | | | | | | | |
| Mixed Feed ----- | 2950 | 7674 | Manufacturers ----- | 10.4 | 3.5 | 3.5 | 14.0 | 14.4 |

⁴⁵ Ground corn and oat hulls present⁴⁶ Corn bran not identified

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, CORN BRAN AND DUST COLLECTOR DUST | | | | | | | | |
| Miller, A. J., Montpelier, Ind. | | | | | | | | |
| Mixed Feed ----- | 6257 | 6007 | Manufacturer ----- | 10.6 | 3.0 | 3.9 | 13.0 | 16.0 |
| Mixed Feed ----- | 6257 | 7957 | Manufacturer ----- | 9.5 | 3.0 | 4.2 | 13.0 | 15.1 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, CORN BRAN, SCREENINGS, DUST COL- LECTOR DUST AND CHAFF | | | | | | | | |
| Harmon & Wallace Milling Company, Owensville, Ind. | | | | | | | | |
| Royal Mixed Feed ----- | 7559 | 6886 | Manufacturers ----- | 9.0 | 3.5 | 3.8 | 13.0 | 15.6 |
| Royal Mixed Feed ----- | 7559 | 7981 | Manufacturers ----- | 9.3 | 3.5 | 4.1 | 13.0 | 17.2 |
| MIXED FEED: WHEAT BRAN, CORN BRAN AND WHEAT DUST | | | | | | | | |
| Dillsboro Milling Company, Dillsboro, Ind. | | | | | | | | |
| Mixed Feed ----- | 4053 | 5412 | Manufacturers ----- | 8.8 | 2.9 | 3.8 | 14.0 | 15.7 |
| Mixed Feed ⁴⁷ ----- | 4053 | 7700 | Manufacturers ----- | 9.5 | 2.9 | 3.6 | 14.0 | 14.0 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, CORN BRAN AND SCREENINGS | | | | | | | | |
| Bailey & Thompson, Prairie Creek, Ind. | | | | | | | | |
| Mixed Feed No. 1 ----- | 6952 | 7232 | J. P. Allan, Farmersburg ----- | 9.6 | 3.0 | 3.9 | 12.5 | 13.0 |
| Besser, W. T., Greencastle, Ind. | | | | | | | | |
| Besser's Extra Mixed Feed ----- | 5170 | 5959 | J. W. Croxton, Cloverdale ----- | 9.0 | 3.5 | 3.5 | 15.4 | 15.2 |
| Bicknell Mill Company, Bicknell, Ind. | | | | | | | | |
| Mixed Feed ----- | 7824 | 5490 | Manufacturers ----- | 9.1 | 3.0 | 4.2 | 13.0 | 15.6 |
| Mixed Feed ----- | 7824 | 8386 | Manufacturers ----- | 8.5 | 3.0 | 3.8 | 13.0 | 14.3 |
| Billman & Sons, C. H., Shelbyville, Ind. | | | | | | | | |
| Shelby Mixed Feed ----- | 4303 | 7000 | Manufacturers ----- | 10.5 | 2.0 | 3.2 | 10.0 | 15.8 |
| Bloomfield Mill & Elevator Company, Bloomfield, Ind. | | | | | | | | |
| Mixed Mill Feed ----- | 4924 | 7176 | Manufacturers ----- | 10.0 | 3.0 | 5.1 | 12.8 | 15.1 |
| Brewer Milling Company, Gosport, Ind. | | | | | | | | |
| Mixed Feed ----- | 3930 | 7457 | Manufacturers ----- | 8.7 | 2.6 | 4.3 | 9.5 | 17.1 |
| Cadick Milling Company, Grandview, Ind. | | | | | | | | |
| Mixed Feed ----- | 7857 | 5796 | Manufacturers ----- | 10.2 | 4.0 | 4.1 | 16.0 | 14.5 |
| Mixed Feed ----- | 7857 | 5857 | C. Eckerty & Sons, Eckerty ----- | 9.1 | 4.0 | 4.0 | 16.0 | 15.5 |
| Mixed Feed ----- | 7857 | 7887 | Louis Schoenfeld, Rockport ----- | 8.8 | 4.0 | 4.2 | 16.0 | 16.1 |
| Mixed Feed ----- | 7857 | 8225 | Manufacturers ----- | 8.8 | 4.0 | 4.2 | 16.0 | 15.8 |
| Cannelton Flour Mills, Cannelton, Ind. | | | | | | | | |
| "A" Mixed Feed ----- | 3426 | 5804 | Manufacturers ----- | 9.8 | 3.5 | 3.9 | 13.5 | 15.0 |
| "A" Mixed Feed ----- | 3426 | 8214 | Manufacturers ----- | 8.5 | 3.5 | 4.1 | 13.5 | 14.4 |
| Corbin Milling Company, New Harmony, Ind. | | | | | | | | |
| Harmonie Mixed Feed ⁴⁸ ----- | 5404 | 6866 | Fuhrer-Ford Milling Co., New Harmony ----- | 8.3 | 3.9 | 3.9 | 13.3 | 12.9 |
| Crescent Milling Company, Crothersville, Ind. | | | | | | | | |
| Mixed Feed ----- | 7574 | 6304 | Manufacturers ----- | 9.9 | 3.8 | 4.7 | 14.5 | 14.3 |
| Mixed Feed ----- | 7574 | 8288 | Manufacturers ----- | 9.3 | 3.8 | 4.6 | 14.5 | 14.5 |

⁴⁷ Sample consists of wheat bran⁴⁸ Withdrawn. Wrong label attached. Relabeled
with No. 2385

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Croxton & Company, J. W., Cloverdale, Ind. Croxtion's Extra Mixed Feed ----- | 2632 | 5961 | J. W. Croxton, Cloverdale----- | 8.3 | 3.5 | 3.3 | 12.0 | 15.2 |
| Egloff Milling Company, The, Vincennes, Ind. Mixed Feed ----- | 6873 | 7226 | Manufacturers ----- | 9.0 | 3.5 | 3.7 | 14.0 | 15.0 |
| Emmert, C. B., Clarksburg, Ind. Mixed Feed ----- | 6929 | 7860 | Manufacturer ----- | 9.9 | 3.0 | 3.8 | 13.0 | 15.0 |
| English Milling Company, English, Ind. English Milling Co. Mixed Feed----- | 966 | 5858 | Manufacturers ----- | 9.7 | 4.0 | 4.0 | 14.1 | 15.0 |
| English Milling Co. Mixed Feed----- | 966 | 8363 | Manufacturers ----- | 9.5 | 4.0 | 4.4 | 14.1 | 15.1 |
| Forrest Park Mills, North Terre Haute, Ind. Mill Feed ----- | 5817 | 7248 | Manufacturers ----- | 10.1 | 3.8 | 3.5 | 9.8 | 13.6 |
| Mill Feed ----- | 5817 | 7624 | Manufacturers ----- | 11.0 | 3.8 | 4.0 | 9.8 | 14.8 |
| Hartz & Carey Milling Company, Chrisney, Ind. Mixed Feed ----- | 8686 | 8223 | Manufacturers ----- | 9.9 | 4.0 | 4.6 | 16.0 | 16.6 |
| Holton Milling Company, Holton, Ind. A. Mixed Feed ----- | 7404 | 5387 | Manufacturers ----- | 9.7 | 3.5 | 3.9 | 14.0 | 14.6 |
| Huntington Mill Company, Huntington, Ind. Mixed Feed ----- | 492 | 6587 | Manufacturers ----- | 9.8 | 3.8 | 4.8 | 13.5 | 15.1 |
| Mixed Feed ----- | 492 | 7595 | Manufacturers ----- | 8.3 | 3.8 | 4.1 | 13.5 | 15.7 |
| Jamestown Milling Company, Jamestown, Ind. Noxemall Mixed Feed ----- | 5655 | 7782 | Farmers Elevator Co., Jamestown ----- | 9.0 | 3.2 | 3.5 | 14.0 | 14.2 |
| Katterjohn, Q. F., Boonville, Ind. Elkhorn Mixed Feed ----- | 3310 | 7885 | Elkhorn Mills, Boonville ----- | 8.2 | 3.5 | 3.3 | 13.5 | 14.3 |
| Klondike Milling Company, Danville, Ind. The Mill Run Mixed Feed----- | 2654 | 6570 | Manufacturers ----- | 9.7 | 3.5 | 4.2 | 13.0 | 15.7 |
| Linton Mill Company, Linton, Ind. A. Mixed Feed ----- | 4047 | 7132 | Board of Trade Feed Store, Linton ----- | 10.1 | 3.5 | 3.7 | 13.0 | 15.4 |
| Marshall Milling Company, Marshall, Ind. Mill Feed ----- | 5153 | 7631 | Manufacturers ----- | 10.0 | 3.0 | 3.6 | 14.0 | 16.1 |
| Martinsville Milling Company, Martinsville, Ind. A Mixed Mill Feed ----- | 6743 | 6088 | Manufacturers ----- | 9.7 | 4.0 | 4.2 | 15.0 | 15.4 |
| Metamora Roller Mills, Metamora, Ind. Mixed Feed ----- | 8523 | 6792 | Manufacturers ----- | 9.4 | 4.0 | 4.5 | 14.5 | 15.3 |
| Oakland City Roller Mills, Oakland City, Ind. Dairy Mixed Feed ----- | 1941 | 6932 | Manufacturers ----- | 9.2 | 3.0 | 4.4 | 12.0 | 15.9 |
| Odon Milling Company, Odon, Ind. Omeo Mixed Feed ----- | 6712 | 5942 | J. Henderson & Sons, Bedford----- | 10.8 | 3.8 | 3.9 | 14.0 | 14.2 |
| Omeo Mixed Feed ----- | 6712 | 6204 | Manufacturers ----- | 9.7 | 3.8 | 4.7 | 14.0 | 14.6 |
| Otwell Milling Company, Otwell, Ind. Otwell's No. 1 Mixed Feed----- | 3828 | 6935 | Manufacturers ----- | 9.1 | 3.2 | 4.2 | 13.0 | 15.8 |
| Paoli Milling Company, The, Paoli, Ind. Paoli Mixed Feed ----- | 2820 | 6962 | Manufacturers ----- | 9.8 | 3.0 | 5.4 | 10.0 | 13.9 |
| Paoli Mixed Feed ----- | 2820 | 8092 | Manufacturers ----- | 8.7 | 3.0 | 4.9 | 10.0 | 14.8 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---------------------|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Reiners, Wm. F., Birdseye, Ind. Reiner's Mixed Feed ----- | 7743 | 8359 | Manufacturers ----- | 9.7 | 3.2 | 4.3 | 13.5 | 15.2 |
| Rockport Milling Company, The, Rockport, Ind. A Mixed Feed ----- | 2247 | 7889 | Manufacturers ----- | 8.6 | 3.9 | 4.5 | 13.3 | 16.1 |
| Rohm Bros., Rockville, Ind. Mill Feed ----- | 5671 | 6110 | Manufacturers ----- | 10.2 | 3.5 | 3.8 | 15.0 | 16.0 |
| Mill Feed ----- | 5671 | 7684 | Manufacturers ----- | 10.3 | 3.5 | 3.7 | 15.0 | 15.1 |
| Rouse & Son, Wm., Indianapolis, Ind. Mixed Feed ----- | 3191 | 6485 | Manufacturers ----- | 10.1 | 3.7 | 4.8 | 13.5 | 16.5 |
| Mixed Feed ----- | 3191 | 7694 | Manufacturers ----- | 9.7 | 3.7 | 4.5 | 13.5 | 15.4 |
| Scottsburg Milling Company, Scottsburg, Ind. Home Mixed Feed ----- | 6236 | 5865 | Manufacturers ----- | 10.4 | 3.5 | 4.7 | 13.5 | 13.6 |
| Home Mixed Feed ----- | 6236 | 8284 | Manufacturers ----- | 8.5 | 3.5 | 4.8 | 13.5 | 14.8 |
| Spink Milling Company, The, Washington, Ind. Mixt Feed ----- | 6332 | 7191 | Manufacturers ----- | 10.6 | 3.5 | 3.6 | 12.5 | 14.8 |
| Star Mill Company, Huntingburg, Ind. Star Mixed Feed ----- | 3509 | 8168 | Manufacturers ----- | 9.8 | 3.5 | 4.2 | 13.5 | 15.2 |
| Star Roller Mills, Carlisle, Ind. Mixed Feed ----- | 5249 | 5587 | Manufacturers ----- | 11.4 | 2.8 | 4.1 | 12.5 | 16.2 |
| Suckow Company, Franklin, Ind. "Perfection" Mixed Feed ----- | 6231 | 6564 | Manufacturers ----- | 8.8 | 4.0 | 4.8 | 12.4 | 16.5 |
| "Perfection" Mixed Feed ----- | 6231 | 7749 | Manufacturers ----- | 9.0 | 4.0 | 4.0 | 12.4 | 16.8 |
| Teel Milling Company, The, Owensville, Ind. Daisy Feed ----- | 6137 | 6887 | Manufacturers ----- | 8.9 | 3.0 | 4.2 | 14.0 | 14.7 |
| Daisy Feed ----- | 6137 | 7980 | Manufacturers ----- | 9.4 | 3.0 | 4.1 | 14.0 | 15.7 |
| Ulrey & Company, A. A., Fairmount, Ind. Mixed Feed ----- | 6901 | 6407 | Manufacturers ----- | 9.4 | 3.0 | 4.3 | 13.5 | 15.2 |
| Valentine & Valentine, Franklin, Ind. Mixed Feed ----- | 934 | 6560 | Manufacturers ----- | 9.2 | 4.0 | 4.5 | 12.4 | 15.7 |
| Mixed Feed ----- | 934 | 7753 | Manufacturers ----- | 9.2 | 4.0 | 4.1 | 12.4 | 16.6 |
| Weber Milling Company, Brookville, Ind. Mixed Feed ----- | 7890 | 6762 | Manufacturers ----- | 10.2 | 3.0 | 4.6 | 14.0 | 15.2 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, CORN BRAN, SCREENINGS AND DUST COLLECTOR DUST | | | | | | | | |
| Reiners, Wm. F., Birdseye, Ind. Reiner's Mixed Feed ----- | 7743 | 5863 | Manufacturer ----- | 9.9 | 3.2 | 3.9 | 13.5 | 14.5 |
| Reiner's Mixed Feed ----- | 7743 | 8359 | Manufacturer ----- | 9.7 | 3.2 | 4.3 | 13.5 | 15.2 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, CORN BRAN, SCREENINGS AND SALT | | | | | | | | |
| Tell City Flouring Mills, Tell City, Ind. A. Mixed Feed ----- | 6051 | 5802 | Manufacturers ----- | 9.9 | 4.0 | 3.8 | 14.0 | 14.7 |
| A. Mixed Feed ----- | 6051 | 8218 | Manufacturers ----- | 8.3 | 4.0 | 3.8 | 14.0 | 14.9 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, CORN BRAN, SCREENINGS AND MILL SWEEPINGS | | | | | | | | |
| Kingman Grain & Milling Company, Kingman, Ind. Millfeed ----- | 3156 | 6053 | Manufacturers ----- | 10.2 | 3.0 | 2.5 | 14.0 | 14.9 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|----------------------------|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Lemon Milling Company, Bedford, Ind. | | | | | | | | |
| Mixed Mill Feed ----- | 3915 | 5932 | Manufacturers ----- | 9.0 | 3.5 | 4.1 | 14.0 | 15.8 |
| Mixed Mill Feed ----- | 3915 | 8091 | B. K. Dermiah, Paoli ----- | 8.9 | 3.5 | 4.3 | 14.0 | 16.5 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, CORN BRAN, SCREENINGS AND OAT HULLS | | | | | | | | |
| Lash Flour Mills, The Fred B., Farmersburg, Ind. | | | | | | | | |
| Lashs Mixed Feed ⁴⁹ ----- | 6416 | 5615 | Manufacturers ----- | 9.6 | 3.0 | 3.3 | 11.0 | 13.8 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, CORN BRAN, CORN FEED MEAL, WHEAT SCREENINGS AND SCOURINGS | | | | | | | | |
| Winslow Milling Company, Winslow, Ind. | | | | | | | | |
| Pikes "A" Mixed Feed ----- | 7058 | 6936 | Manufacturers ----- | 9.8 | 4.0 | 3.5 | 14.0 | 13.0 |
| MIXED FEED: WHEAT BRAN, SHORTS, CORN BRAN, WHEAT SCREENINGS AND SCOURINGS AND MILL SWEEPINGS | | | | | | | | |
| Farmers Mill, The, Huntingburg, Ind. | | | | | | | | |
| Farmers Mixed Feed ----- | 6520 | 5763 | Manufacturers ----- | 9.2 | 3.0 | 3.9 | 13.0 | 15.1 |
| Farmers Mixed Feed ----- | 6520 | 8169 | Manufacturers ----- | 10.1 | 3.0 | 4.2 | 13.0 | 15.4 |
| MIXED FEED: WHEAT BRAN, CORN BRAN, SCREENINGS, DUST COLLECTOR DUST AND WHEAT CHAFF | | | | | | | | |
| Hazleton Flour Mills, The, Hazleton, Ind. | | | | | | | | |
| Mixed Feed ----- | 7174 | 6735 | Manufacturers ----- | 10.2 | 3.0 | 6.1 | 12.0 | 13.4 |
| MIXED FEED: WHEAT BRAN, SHORTS, SCREENINGS, WHEAT DUST AND MILL SWEEPINGS | | | | | | | | |
| Cauble, O. L., Pekin, Ind. | | | | | | | | |
| Mixed Feed ----- | 6139 | 5883 | Manufacturer ----- | 9.5 | 2.0 | 4.0 | 10.0 | 15.6 |
| Mixed Feed ----- | 6139 | 8029 | Manufacturer ----- | 9.7 | 2.0 | 4.6 | 10.0 | 14.9 |
| MIXED FEED: WHEAT BRAN, WHEAT MIDDINGS, CORN BRAN, CORN FEED MEAL AND SCREENINGS | | | | | | | | |
| Milltown Milling Company, Milltown, Ind. | | | | | | | | |
| "Mixed Feed" ⁵⁰ ----- | 7742 | 5848 | Manufacturers ----- | 9.5 | 3.5 | 4.2 | 13.5 | 16.3 |
| "Mixed Feed" ----- | 7742 | 8296 | Manufacturers ----- | 9.7 | 3.5 | 3.9 | 13.5 | 15.1 |
| Petersburg Milling & Grain Company, Petersburg, Ind. | | | | | | | | |
| Petersburg "A" Mixed Feed ⁵⁰ ----- | 7765 | 7190 | Manufacturers ----- | 10.9 | 3.0 | 4.3 | 13.0 | 14.6 |
| Springs Valley Milling Company, French Lick, Ind. | | | | | | | | |
| Valley Mixed Feed ----- | 6973 | 5744 | Manufacturers ----- | 9.5 | 3.0 | 4.6 | 11.0 | 14.3 |
| Valley Mixed Feed ----- | 6976 | 8090 | Manufacturers ----- | 8.5 | 3.0 | 4.7 | 11.0 | 15.0 |
| Whitlock Mill Company, The, Petersburg, Ind. | | | | | | | | |
| Mixed Feed ⁵¹ ----- | 8465 | 7189 | Manufacturers ----- | 11.1 | 3.0 | 3.3 | 13.0 | 14.7 |

⁴⁹ Middlings and corn bran not identified
⁵⁰ Corn feed meal not identified⁵¹ Corn bran, corn feed meal not identified

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| MIXED FEED: WHEAT BRAN AND CORN RED DOG FLOUR | | | | | | | | |
| Krause Milling Company, Chas. A., Milwaukee, Wis. Badger Fancy Mixed Feed..... | 4341 | 6858 | Hartman & Dotterer, Bluffton.. | 9.5 | 3.0 | 7.7 | 11.0 | 12.9 |
| MIXED FEED: WHEAT MID- DLINGS, RED DOG FLOUR AND SCREENINGS | | | | | | | | |
| Washburn-Crosby Company, Minneapolis, Minn. Wheat Flour Middlings with Ground Screenings Not Exceeding Mill Run.. | 7232 | 5988 | T. S. Nugen, Lewisville | 10.0 | 4.0 | 5.1 | 15.0 | 17.1 |
| Wheat Flour Middlings with Ground Screenings Not Exceeding Mill Run.. | 7232 | 7917 | Ballard & Magenheimer, Haubstadt | 9.4 | 4.0 | 5.6 | 15.0 | 19.0 |
| MIXED FEED: WHEAT MID- DLINGS AND CORN FEED MEAL | | | | | | | | |
| Boonville Milling Company, Boonville, Ind. Shorts & Feed Meal ⁵² | 7847 | 5803 | Manufacturers | 10.6 | 4.0 | 4.2 | 14.0 | 15.2 |
| Shorts & Feed Meal | 7847 | 6905 | Manufacturers | 9.5 | 4.0 | 3.5 | 14.0 | 15.2 |
| Shorts & Feed Meal | 7847 | 7884 | Manufacturers | 9.5 | 4.0 | 4.4 | 14.0 | 16.2 |
| Fornax Milling Company, Decatur, Ind. Fornax Hog Feed | 7199 | 5419 | Manufacturers | 9.7 | 2.8 | 3.9 | 12.0 | 14.9 |
| Fornax Hog Feed ⁵² | 7199 | 6039 | Manufacturers | 10.9 | 2.8 | 4.1 | 12.0 | 15.0 |
| MIXED FEED: WHEAT MID- DLINGS, CORN FEED MEAL AND SCREENINGS | | | | | | | | |
| Spink Milling Company, The, Washington, Ind. Fine Mixed Mill Feed | 8137 | 7197 | Manufacturers | 10.4 | 3.5 | 3.7 | 14.0 | 14.0 |
| MIXED FEED: WHEAT MID- DLINGS, CORN FEED MEAL CORN BRAN AND WHEAT SCREENINGS | | | | | | | | |
| Zillak & Schafer Milling Company, Haubstadt, Ind. Wheat Shorts, Screenings, Corn Bran and Feed Meal | 8291 | 7922 | Manufacturers | 9.3 | 4.5 | 5.9 | 16.5 | 16.8 |
| MIXED FEED: WHEAT MID- DLINGS AND RYE MIDDINGS | | | | | | | | |
| Eckhart Milling Company, B. A., Chicago, Ill. ††Flour Middlings | 8675 | 7583 | S. D. Bailey Co., Wanatah..... | 9.9 | 4.0 | 3.8 | 15.0 | 15.4 |
| Starr Mills, South Bend, Ind. Wheat & Rye Middlings | 6000 | 7301 | Manufacturers | 8.5 | 3.0 | 3.9 | 14.0 | 14.7 |
| MIXED FEED: WHEAT MID- DLINGS, SCREENINGS AND SALT | | | | | | | | |
| Akin-Erskine Milling Company, Evansville, Ind. Standard Middlings or Shorts, Ground Wheat Screenings and Salt ⁵³ | 6032 | 6138 | Uhl-Snyder Milling Co., Connersville | 10.0 | 4.0 | 4.0 | 14.0 | 15.4 |
| Standard Middlings or Shorts, Ground Wheat Screenings and Salt | 6032 | 6738 | Uhl-Snyder Milling Co., Connersville | 9.1 | 4.0 | 3.8 | 14.0 | 14.7 |
| Standard Middlings or Shorts, Ground Wheat Screenings and Salt | 6032 | 7817 | Ohio Valley Seed Co., Evansville | 8.7 | 4.0 | 4.1 | 14.0 | 15.7 |

†† Not tagged. Labels furnished

⁵² Corn feed meal not identified⁵³ Conflicting guarantees

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Tell City Flouring Mills, Tell City, Ind. Wheat Middlings and Wheat Screen- ings Seasoned with Salt ----- | 6050 | 5801 | Manufacturers ----- | 10.0 | 4.0 | 3.8 | 14.0 | 14.5 |
| Wheat Middlings and Wheat Screen- ings Seasoned with Salt ----- | 6050 | 8216 | T. W. Irwin, Cannelton ----- | 7.8 | 4.0 | 4.0 | 14.0 | 15.1 |
| MIXED FEED: WHEAT MID- DLINGS, SCREENINGS AND OAT HULLS | | | | | | | | |
| Lash Flour Mills, The Fred B., Farmersburg, Ind. Lashes Extra Mixed Feed ----- | 6417 | 5616 | Manufacturers ----- | 10.7 | 4.0 | 3.2 | 14.0 | 14.9 |
| RYE MIDDINGS | | | | | | | | |
| Bay State Milling Company, Winona, Minn. Rye Middlings ⁵⁴ ----- | 8189 | 7482 | B. I. Holser & Co., Walkerton-- | 8.2 | 3.4 | 3.6 | 16.0 | 16.5 |
| Rye Middlings ⁵⁵ ----- | 8189 | 7829 | B. I. Holser & Co., Walkerton-- | 8.6 | 3.4 | 3.5 | 16.0 | 17.2 |
| Washburn-Crosby Company, Minneapolis, Minn. Washburn-Crosby Co's Rye Middlings-- | 2174 | 5870 | Crabbs Reynolds Taylor Co., Lafayette ----- | 8.6 | 3.0 | 3.4 | 14.0 | 16.1 |
| Washburn-Crosby Co's Rye Middlings-- | 7018 | 5698 | Harrison Smith, Terre Haute--- | 8.6 | 3.0 | 3.7 | 14.0 | 18.4 |
| Washburn-Crosby Co's Rye Middlings-- | 7018 | 6229 | Simon J. Carroll, Royal Center--- | 9.5 | 3.0 | 3.7 | 14.0 | 17.7 |
| Washburn-Crosby Co's Rye Middlings-- | 7018 | 6702 | A. O. Carter, Martinsville ----- | 8.7 | 3.0 | 3.7 | 14.0 | 16.9 |
| RYE MIDDINGS AND SCREEN- INGS | | | | | | | | |
| Deutsch & Sickert Company, Milwaukee, Wis. Rye Middlings including Mill Run Screenings ----- | 8761 | 7714 | Covington Grain Co., Covington ----- | 8.7 | 3.0 | 3.7 | 14.0 | 15.8 |
| Mueller, E. P., Chicago, Ill. Rye Middlings and Screenings ----- | 8731 | 8279 | Luebecke Bros., Crown Point--- | 9.3 | 3.5 | 3.8 | 16.1 | 15.4 |
| Pillsbury Flour Mills Company, Minneapolis, Minn. Pillsbury's Rye Middlings with Ground Screenings Not Exceeding Mill Run-- | 8519 | 7134 | Board of Trade Feed Store, Linton ----- | 10.1 | 3.5 | 3.6 | 15.0 | 15.9 |
| Pillsbury's Rye Middlings with Ground Screenings Not Exceeding Mill Run-- | 8519 | 7668 | Paul Kuhn & Co., Perrysville--- | 9.0 | 3.5 | 4.2 | 15.0 | 17.6 |
| MIXED FEED: RYE BRAN AND RYE MIDDINGS | | | | | | | | |
| Fisher & Fallgatter, Waupaca, Wis. Rye Feed ----- | 8822 | 7755 | Valentine & Valentine, Franklin | 9.2 | 3.0 | 3.5 | 15.0 | 15.8 |
| Friedrich & Son, C. W., Dyer, Ind. Rye Mixed Feed ----- | 2715 | 7359 | Manufacturers ----- | 11.5 | 2.0 | 2.8 | 12.0 | 16.2 |
| Hunter & Company, O. L., Chicago, Ill. Calumet Rye Feed ----- | 5352 | 7995 | Simon J. Carroll, Bunker Hill-- | 9.1 | 3.0 | 3.8 | 14.0 | 14.8 |
| North Judson Milling Company, North Judson, Ind. Rye Mixed Feed ----- | 8127 | 7373 | Manufacturers ----- | 10.4 | 2.0 | 2.4 | 12.0 | 13.1 |
| Roper & Brown, Hobart, Ind. Hobart "Rye Feed" ----- | 5993 | 6453 | Manufacturers ----- | 10.9 | 2.0 | 2.6 | 13.0 | 14.3 |
| BUCKWHEAT HULLS | | | | | | | | |
| Iroquois Roller Mills, Rensselaer, Ind. Buckwheat Hulls ----- | 7115 | 5499 | Manufacturers ----- | 9.6 | 1.5 | 1.7 | 6.8 | 6.8 |

⁵⁴ Ground screenings present⁵⁵ Screenings present. 16 tons removed from sale

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | |
|--|----------|-----------------|----------------------------------|-----------------------|---------------------------|-------|-------------------------------|-------|--|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found | |
| | | | | | | | | | |
| GROUND SCREENINGS FROM WHEAT AND BARLEY | | | | | | | | | |
| Butler & Company, Edw. J., Chicago, Ill. Butler's Premium Chop Feed ----- | 8806 | 7419 | Jay Grain Co., Mulberry ----- | 10.2 | 4.1 | 4.0 | 12.4 | 12.4 | |
| CORN AND OATS CHOP | | | | | | | | | |
| American Hominy Company, Indianapolis, Ind. †Cracked Corn and Rolled Oats----- | 6578 | 6852 | Chas. L. Stocker, Evansville---- | 9.7 | 4.0 | 4.5 | 9.0 | 10.2 | |
| Cracked Corn and Rolled Oats----- | 6578 | 6984 | Richards & Lawson, Shelbyville | 9.3 | 4.0 | 3.8 | 9.0 | 9.7 | |
| Ashbrook Company, The J. S., Mattoon, Ill. Peerless Corn & Oats Chop----- | 7983 | 6482 | McCoy & Garten, Indianapolis-- | 9.9 | 3.0 | 4.6 | 10.0 | 10.3 | |
| †Peerless Corn & Oats Chop----- | 7983 | 7236 | Smith Grocery Co., Clinton---- | 9.9 | 3.0 | 4.2 | 10.0 | 9.4 | |
| Bash & Company, C. E., Huntington, Ind. C. E. Bash & Co's Chop----- | 1749 | 5538 | Manufacturers ----- | 10.0 | 3.9 | 4.0 | 9.5 | 9.3 | |
| C. E. Bash & Co's Chop----- | 1749 | 6593 | Manufacturers ----- | 9.6 | 3.9 | 4.1 | 9.5 | 9.8 | |
| Beck, Delbert F., Burlington, Ind. Beck's Chop Feed ----- | 1209 | 5944 | Manufacturer ----- | 10.4 | 3.9 | 3.7 | 9.5 | 10.0 | |
| Bock, Leonard, Argos, Ind. Chop Feed ----- | 549 | 6670 | Manufacturers ----- | 10.1 | 3.9 | 4.4 | 9.5 | 10.4 | |
| Branch Grain & Seed Company, Martinsville, Ind. Horse Feed ----- | 272 | 6704 | Manufacturers ----- | 10.1 | 3.5 | 4.3 | 9.0 | 9.6 | |
| Chapman-Doake Company, Decatur, Ill. †Corn & Oats Chop ----- | 8590 | 6625 | C. F. Carter, Terre Haute----- | 10.4 | 4.0 | 4.0 | 10.0 | 9.7 | |
| Combs & Sons, L., Vincennes, Ind. Corn & Oats Feed ----- | 8070 | 5685 | Manufacturers ----- | 12.2 | 3.0 | 4.4 | 8.0 | 8.9 | |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. Corn & Oats Ground ⁵⁶ ----- | 786 | 6790 | Manufacturers ----- | 10.6 | 3.9 | 4.3 | 9.5 | 9.3 | |
| Goshen Milling Company, Goshen, Ind. Chop Feed ----- | 3238 | 6522 | Manufacturers ----- | 10.7 | 3.7 | 5.1 | 9.8 | 11.2 | |
| Hargrave Bros., Russellville, Ind. Corn & Oat Chop ----- | 3990 | 5704 | Manufacturers ----- | 9.8 | 3.0 | 4.6 | 9.0 | 9.4 | |
| Haynes Milling Company, The, Portland, Ind. Corn & Oats Chop Feed ----- | 93 | 5956 | Manufacturers ----- | 10.0 | 3.9 | 4.0 | 9.5 | 9.8 | |
| Holliday & Son, John, Greentown, Ind. Chop Feed ----- | 6188 | 6875 | Manufacturers ----- | 9.6 | 3.0 | 4.0 | 9.0 | 9.8 | |
| Huntington Mill Company, Huntington, Ind. Chop Feed ----- | 494 | 6588 | Manufacturers ----- | 9.3 | 3.7 | 5.5 | 11.0 | 10.8 | |
| Indiana Elevator Company, Indianapolis, Ind. Gold Medal Chop ----- | 5301 | 6544 | Manufacturers ----- | 10.4 | 3.0 | 3.5 | 8.0 | 10.5 | |
| Gold Medal Chop ----- | 5301 | 7738 | Manufacturers ----- | 9.0 | 3.0 | 3.8 | 8.0 | 11.0 | |
| Jones, G. W., Upland, Ind. Corn & Oats Chop ----- | 3212 | 6339 | Manufacturer ----- | 9.1 | 3.5 | 4.9 | 9.0 | 10.3 | |

†† Not tagged. Labels furnished

⁵⁶ Corn Feed Meal present. Removed from sale.
Relabeled with No. 8609

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Kuhn & Son, John H., Michigan City, Ind. Chop Feed ----- | 5331 | 6327 | Manufacturers ----- | 10.1 | 3.5 | 3.9 | 8.8 | 10.8 |
| Ligonier Milling Company, Ligonier, Ind. Ligonier Milling Co's Corn & Oats Chop ----- | 378 | 7512 | Lyon & Greenleaf, Ligonier---- | 9.9 | 3.9 | 4.0 | 9.5 | 10.5 |
| Noftsgcr, Benjamin, Rochester, Ind. Corn and Oats Chop ----- | 2051 | 6622 | Manufacturer ----- | 10.6 | 3.5 | 3.9 | 9.0 | 9.9 |
| Peru Milling Company, The, Peru, Ind. Chop Feed ----- | 19 | 6611 | Manufacturers ----- | 10.3 | 3.2 | 4.0 | 8.8 | 8.9 |
| Pitman, H. E., Bedford, Ind. Chop Feed ----- | 387 | 5925 | Manufacturer ----- | 10.9 | 3.2 | 4.1 | 8.8 | 9.5 |
| Pymont Mills Company, Pymont, Ind. Pymont Corn and Oats Chop----- | 5839 | 6217 | Manufacturers ----- | 8.3 | 3.9 | 4.0 | 9.5 | 9.3 |
| Reed Feed Store, Chas., Rochester, Ind. Corn & Oat Chop ----- | 3471 | 6626 | Manufacturers ----- | 10.3 | 3.5 | 5.3 | 8.8 | 10.3 |
| Roach & Rothenberger, Delphi, Ind. Corn and Oats Chop ----- | 284 | 6945 | Manufacturers ----- | 9.5 | 3.9 | 4.6 | 9.5 | 10.0 |
| South Side Cereal Mills, Fort Wayne, Ind. Corn and Oats Chops ----- | 5403 | 5529 | Manufacturers ----- | 11.7 | 3.5 | 3.4 | 9.0 | 8.6 |
| Steckley, George, Kendallville, Ind. Chop Feed ----- | 405 | 6506 | Manufacturer ----- | 10.9 | 4.0 | 5.0 | 10.0 | 11.2 |
| Studebaker & Son, John, Bluffton, Ind. Corn & Oats Chop ----- | 1948 | 7968 | Studebaker Grain & Seed Co., Van Buren ----- | 9.7 | 3.9 | 4.2 | 9.5 | 9.8 |
| Sullivan Mill & Elevator Company, Sullivan, Ind. Corn & Oats Chop ----- | 2959 | 5589 | Manufacturers ----- | 12.2 | 3.5 | 4.3 | 9.0 | 9.7 |
| Veirs & Wicks, Rochester, Ind. Veirs & Wicks' Chop Feed ----- | 321 | 6621 | Manufacturers ----- | 10.5 | 4.0 | 5.5 | 10.0 | 10.5 |
| Wakarusa Milling Company, Wakarusa, Ind. Wakarusa Corn & Oats Chop----- | 1250 | 6532 | Manufacturers ----- | 9.6 | 3.9 | 4.3 | 9.5 | 11.5 |
| Wakarusa Corn & Oats Chop----- | 1250 | 7272 | Ullery & Son, South Bend----- | 9.3 | 3.9 | 4.0 | 9.5 | 11.2 |
| Watson, Gilf. L., Redkey, Ind. Chop Feed ----- | 8187 | 7088 | Manufacturer ----- | 9.7 | 3.5 | 4.0 | 9.0 | 9.9 |
| Wilkinson & Company, T. B., Knightstown, Ind. Chop Feed ----- | 3456 | 6254 | Manufacturers ----- | 10.3 | 3.3 | 4.4 | 8.5 | 9.6 |
| Yountsville Mill, The, Yountsville, Ind. ††Corn & Oats Chop ----- | 3082 | 6914 | I. B. Clyne, Crawfordsville---- | 10.5 | 3.5 | 4.5 | 9.0 | 10.1 |
| CORN, OATS AND RYE | | | | | | | | |
| Goshen Milling Company, The, Goshen, Ind. Island Park Chop ----- | 5923 | 8129 | Manufacturers ----- | 9.4 | 3.0 | 3.5 | 8.5 | 11.7 |
| Portland Equity Exchange, The, Portland, Ind. Chop Feed ----- | 8034 | 5957 | Manufacturers ----- | 10.7 | 3.0 | 3.7 | 9.0 | 11.1 |
| Chop Feed ----- | 8034 | 6833 | Manufacturers ----- | 10.2 | 3.0 | 3.3 | 9.0 | 9.7 |

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Thomas & Son, A. R., Markle, Ind. Corn, Oats & Rye Chop ----- | 4077 | 5543 | Manufacturers ----- | 11.4 | 3.2 | 4.1 | 9.5 | 10.8 |
| CORN, OATS, BARLEY AND OAT HULLS | | | | | | | | |
| Acme-Evans Company, Indianapolis, Ind. | 6200 | 7142 | Farmers Supply Co., Spencer--- | 10.2 | 4.0 | 4.4 | 8.0 | 10.2 |
| Acme C. O. & B. Chop----- | 6209 | 7269 | Acme-Evans Co., South Bend--- | 10.4 | 4.0 | 3.2 | 8.0 | 8.2 |
| CORN, OATS AND WHEAT | | | | | | | | |
| Claypole, Geo. M., Sardinia, Ind. | 8165 | 5446 | Manufacturer ----- | 11.9 | 3.5 | 3.9 | 9.5 | 9.3 |
| Chop Feed ----- | 8165 | 6994 | Westport Grain Co., Westport--- | 10.2 | 3.5 | 3.7 | 9.5 | 9.4 |
| King Grain Company, Wabash, Ind. *Wheat Corn & Oats ----- | --- | 5549 | Manufacturers ----- | 11.9 | --- | 2.7 | --- | 10.4 |
| CORN, OATS, RYE, WHEAT, CORN FEED MEAL AND CORN BRAN | | | | | | | | |
| Pancost Milling Company, Elkhart, Ind. | 7400 | 6492 | Manufacturers ----- | 10.0 | 3.0 | 3.9 | 8.0 | 10.2 |
| "Pancost" Chop Feed ----- | 7400 | 7554 | Manufacturers ----- | 9.6 | 3.0 | 4.0 | 8.0 | 12.5 |
| CORN, OATS, RYE, WHEAT, CORN FEED MEAL AND SCREENINGS | | | | | | | | |
| Goodrich Bros. Hay & Grain Co., Winchester, Ind. | 6010 | 5912 | Goodrich Bros. Hay & Grain Co., Farmland ----- | 9.6 | 3.5 | 3.0 | 9.5 | 12.8 |
| "Climax Chop" ----- | 6010 | 7520 | L. Brand, Muncie ----- | 11.0 | 3.5 | 4.5 | 9.5 | 11.1 |
| CORN, OATS, RYE, WHEAT, CORN FEED MEAL, CORN BRAN AND SCREENINGS | | | | | | | | |
| Myers & Son, Joseph H., Chili, Ind. Myers' Chop Feed ----- | 6600 | 6615 | Manufacturers ----- | 9.7 | 3.0 | 4.2 | 9.0 | 10.0 |
| CORN, OATS AND SCREENINGS | | | | | | | | |
| Walker, H. L., Montpelier, Ind. Chop Feed ----- | 8130 | 7041 | Manufacturer ----- | 11.3 | 3.5 | 3.8 | 8.0 | 9.5 |
| CORN, OATS AND CORN BRAN | | | | | | | | |
| Creitz & Deardoff, Centerville, Ind. Chop Feed ----- | 7703 | 5992 | Manufacturers ----- | 12.1 | 3.3 | 4.6 | 9.0 | 10.0 |
| Fyke Milling Company, Lagrange, Ind. Fyke's Chop Feed ----- | 2134 | 7304 | Manufacturers ----- | 9.6 | 3.5 | 5.0 | 9.5 | 11.0 |
| Garrett & Funk, Liberty Center, Ind. | 5122 | 5504 | Manufacturers ----- | 11.0 | 2.7 | 3.9 | 8.5 | 9.0 |
| Chop Feed ----- | 5122 | 6098 | Manufacturers ----- | 12.6 | 2.7 | 4.0 | 8.5 | 9.1 |
| Gilman, S. B., Summitville, Ind. Gilman's Corn and Oats Chop----- | 2444 | 6069 | Manufacturer ----- | 12.5 | 3.5 | 3.8 | 9.0 | 9.9 |
| Pennville Milling Company, Pennville, Ind. | 3546 | 6830 | Manufacturers ----- | 9.8 | 3.0 | 4.6 | 9.0 | 9.8 |
| CORN, OATS, CORN FEED MEAL AND CORN BRAN | | | | | | | | |
| Amboy Milling Company, Amboy, Ind. Chop Feed ----- | 6089 | 5647 | F. E. Badgley Milling Co., Amboy ----- | 10.4 | 3.3 | 4.9 | 8.8 | 9.9 |

* Not tagged

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Boldt & Son, Waynetown, Ind. Chop Feed ----- | 7926 | 7716 | Manufacturers ----- | 9.9 | 2.8 | 3.6 | 8.7 | 10.4 |
| Burrell & Morgan, Elkhart, Ind. Burrell & Morgan's Chop Feed ----- | 5835 | 6494 | Manufacturers ----- | 10.7 | 3.0 | 4.1 | 8.0 | 10.3 |
| Burrell & Morgan's Chop Feed ----- | 5835 | 7288 | Burrell & Morgan, Mishawaka ----- | 10.0 | 3.0 | 4.0 | 8.0 | 10.5 |
| Burrell & Morgan's Chop Feed ----- | 5835 | 7550 | Manufacturers ----- | 10.0 | 3.0 | 5.3 | 8.0 | 10.8 |
| Butler Milling Company, Butler, Ind. Chop Feed ----- | 6940 | 7401 | Manufacturers ----- | 9.4 | 3.0 | 3.8 | 8.7 | 10.5 |
| Clayton Milling Company, Clayton, Ind. Chop Feed ----- | 7663 | 6572 | Manufacturers ----- | 9.0 | 3.0 | 4.6 | 9.0 | 9.7 |
| Coppes Bros. & Zook, Nappanee, Ind. Chop Feed ----- | 6009 | 6527 | Manufacturers ----- | 9.9 | 3.0 | 3.7 | 8.0 | 10.3 |
| Chop Feed ----- | 6009 | 7303 | J. W. Appleman, Lagrange ----- | 8.7 | 3.0 | 4.5 | 8.0 | 11.3 |
| DeBaun Mill, Terre Haute, Ind. Old Reliable Chop Feed ----- | 3338 | 6660 | Yaw Bros., Terre Haute ----- | 11.1 | 3.5 | 3.5 | 9.0 | 9.3 |
| Finkle, Jacob, Warren, Ind. Chop Feed ----- | 7661 | 6096 | Manufacturer ----- | 11.8 | 3.9 | 3.9 | 9.5 | 9.4 |
| Chop Feed ----- | 7661 | 6862 | Manufacturer ----- | 10.4 | 3.9 | 4.0 | 9.5 | 9.6 |
| Gas City Elevator Company, Gas City, Ind. Chop Feed ----- | 7998 | 6058 | Manufacturers ----- | 11.6 | 3.0 | 3.6 | 9.0 | 11.0 |
| Chop Feed ----- | 7998 | 6400 | Manufacturers ----- | 10.9 | 3.0 | 4.0 | 9.0 | 9.8 |
| Geneva Milling & Grain Company, Geneva, Ind. Egley's Chop Feed ----- | 6740 | 6036 | Manufacturers ----- | 11.3 | 2.8 | 4.1 | 8.7 | 9.2 |
| Graft, C. V., Winchester, Ind. Graft's Chop Feed ----- | 8166 | 5895 | City Mills & Elevator, Winchester ----- | 10.5 | 3.5 | 4.4 | 8.5 | 10.3 |
| Graft's Chop Feed ----- | 8166 | 7029 | Manufacturer ----- | 11.3 | 3.5 | 4.3 | 8.5 | 10.0 |
| Heckman & Company, Decatur, Ind. Heckman's Chop Feed ----- | 3420 | 5420 | Fornax Milling Co., Decatur ----- | 9.4 | 3.0 | 4.5 | 9.0 | 9.7 |
| Hollett-Winders Grain Company, The, Arcadia, Ind. Chop Feed ----- | 5789 | 6089 | Manufacturers ----- | 11.5 | 3.0 | 5.4 | 9.0 | 10.4 |
| Huntington Milling Company, Huntington, Ind. "Chop Feed" ----- | 8586 | 7593 | Manufacturers ----- | 8.5 | 2.7 | 5.0 | 8.5 | 10.9 |
| Jones & Son, C. N., Wabash, Ind. "A" Chop Feed ----- | 5191 | 5877 | Manufacturers ----- | 10.8 | 3.0 | 5.2 | 9.0 | 10.3 |
| "A" Chop Feed ----- | 5191 | 6598 | Manufacturers ----- | 10.3 | 3.0 | 3.7 | 9.0 | 9.0 |
| Jonesboro Milling Company, Jonesboro, Ind. Chop Feed ----- | 7999 | 6405 | Manufacturers ----- | 9.1 | 2.8 | 4.6 | 8.7 | 9.7 |
| Kiest Milling Company, Knox, Ind. Chop Feed ----- | 7970 | 6260 | Manufacturers ----- | 9.5 | 3.0 | 4.3 | 9.0 | 9.7 |
| Chop Feed ----- | 7970 | 7477 | Manufacturers ----- | 8.6 | 3.0 | 5.8 | 9.0 | 11.2 |
| Lefforge, Otto, Rossville, Ind. Chop Feed ----- | 7932 | 7336 | Manufacturer ----- | 10.9 | 3.0 | 4.3 | 8.0 | 10.0 |
| Matthews Roller Mills, Matthews, Ind. Moore's Chop Feed ----- | 6650 | 6337 | Manufacturer ----- | 10.7 | 2.8 | 4.1 | 8.7 | 9.7 |
| Matix & Company, N. W., Lebanon, Ind. Chop Feed ----- | 6883 | 7319 | Manufacturer ----- | 9.7 | 3.0 | 4.5 | 9.0 | 10.0 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Maumee Valley Mills, New Haven, Ind. | | | | | | | | |
| Chop Feed ----- | 4382 | 5515 | Reed Bros., Fort Wayne----- | 11.4 | 3.5 | 4.3 | 9.0 | 9.6 |
| Chop Feed ----- | 4382 | 6027 | Manufacturers ----- | 13.2 | 3.5 | 4.1 | 9.0 | 8.6 |
| Chop Feed ----- | 4382 | 8179 | Manufacturers ----- | 10.0 | 3.5 | 4.4 | 9.0 | 10.0 |
| Monroe Grain Hay & Milling Company, Monroe, Ind. | | | | | | | | |
| Chop Feed ----- | 3406 | 7098 | Manufacturers ----- | 10.5 | 3.0 | 3.0 | 8.0 | 9.7 |
| McCoy Elevator, R. A., Greensburg, Ind. | | | | | | | | |
| Chop Feed ----- | 8466 | 7858 | Manufacturers ----- | 9.1 | 3.5 | 3.8 | 9.0 | 9.6 |
| Naber & Company, Chas. F., Alexandria, Ind. | | | | | | | | |
| Nabers Chop ----- | 7196 | 6065 | Manufacturers ----- | 11.5 | 2.5 | 4.7 | 8.0 | 10.2 |
| Nabers Chop ----- | 7196 | 7577 | Manufacturers ----- | 9.1 | 2.5 | 4.1 | 8.0 | 9.3 |
| Nading Grain Company, Wm., Greensburg, Ind. | | | | | | | | |
| Nading's Ground Feed ----- | 7710 | 7857 | Manufacturers ----- | 10.1 | 3.3 | 4.4 | 9.5 | 9.7 |
| Niezer & Company, Fort Wayne, Ind. | | | | | | | | |
| Niezer's Chop Feed ----- | 6269 | 8178 | Niezer & Co., Monroeville ----- | 9.2 | 2.8 | 5.0 | 8.7 | 10.8 |
| Oxford Feed Mill, Oxford, Ind. | | | | | | | | |
| Deed's "Chop Feed" ----- | 4990 | 5993 | Manufacturers ----- | 11.3 | 3.0 | 4.3 | 9.0 | 10.1 |
| Pierceton Grain Company, Pierceton, Ind. | | | | | | | | |
| Chop Feed ----- | 4429 | 6028 | DeBolt & Niswonger, Monroeville ----- | 13.1 | 3.0 | 3.8 | 8.0 | 8.9 |
| Chop Feed ----- | 4429 | 8171 | DeBolt & Niswonger, Monroeville ----- | 9.3 | 3.0 | 4.3 | 8.0 | 9.8 |
| Rouch, W. E., Mishawaka, Ind. | | | | | | | | |
| Chop Feed ----- | 8225 | 7547 | Manufacturer ----- | 9.8 | 3.5 | 3.8 | 9.0 | 10.3 |
| Schaefer, Carl H., Indianapolis, Ind. | | | | | | | | |
| Schaefer's Special Chop Feed ----- | 7190 | 6426 | Manufacturer ----- | 9.2 | 3.0 | 5.0 | 8.0 | 9.3 |
| Sheridan Milling Company, Sheridan, Ind. | | | | | | | | |
| Chop Feed ----- | 5964 | 5729 | Manufacturers ----- | 8.5 | 2.7 | 4.9 | 9.0 | 10.2 |
| Chop Feed ----- | 5964 | 6374 | Mendenhall-Weaver Co., Sheridan ----- | 9.4 | 2.7 | 4.4 | 9.0 | 9.7 |
| Smith & Company, A., Sheridan, Ind. | | | | | | | | |
| New Chop Feed ----- | 6264 | 5732 | Manufacturers ----- | 8.2 | 3.0 | 6.4 | 8.8 | 10.7 |
| New Chop Feed ----- | 6264 | 7331 | Manufacturers ----- | 10.9 | 3.0 | 4.7 | 8.8 | 10.0 |
| Smith Company, C. E., Wabash, Ind. | | | | | | | | |
| Smith's Chop Feed ----- | 5300 | 5550 | Manufacturers ----- | 13.1 | 3.0 | 3.7 | 9.0 | 10.0 |
| Smith Grain & Milling Company, Warsaw, Ind. | | | | | | | | |
| Chop Feed ----- | 6521 | 7170 | Green Bros. & Oldfather, Warsaw ----- | 10.9 | 3.0 | 3.4 | 9.0 | 10.1 |
| South Side Feed Store, Peru, Ind. | | | | | | | | |
| Chop Feed ----- | 7530 | 6610 | Manufacturers ----- | 9.6 | 2.8 | 4.3 | 8.8 | 9.4 |
| St. John, H. E., Albany, Ind. | | | | | | | | |
| Chop Feed ----- | 6365 | 7127 | Manufacturer ----- | 9.6 | 3.0 | 3.6 | 8.7 | 10.4 |
| Sturgeon Grain & Coal Company, Muncie, Ind. | | | | | | | | |
| Chop Feed ----- | 7223 | 7035 | Manufacturer ----- | 11.8 | 3.5 | 4.1 | 8.8 | 10.4 |
| Swayzee Milling Company, Swayzee, Ind. | | | | | | | | |
| Chop Feed ----- | 5208 | 6873 | Manufacturers ----- | 10.0 | 3.0 | 5.2 | 9.0 | 9.9 |
| Swayzees Market, Marion, Ind. | | | | | | | | |
| Swayzee's Chop Feed ----- | 5522 | 6368 | Manufacturers ----- | 10.2 | 3.0 | 4.2 | 9.0 | 10.4 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|-----------------------------------|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Thomas Milling Company, Marion, Ind. Chop Feed ----- | 8452 | 6337 | Manufacturers ----- | 10.7 | 3.0 | 4.4 | 9.0 | 9.4 |
| Tresselt & Sons, C., Ft. Wayne, Ind. Tresselt's Chop Feed ----- | 7209 | 7112 | Manufacturers ----- | 9.7 | 3.5 | 3.9 | 9.0 | 10.0 |
| Tuttle & Company, R., Columbia City, Ind. Chop Feed ----- | 6945 | 6697 | Manufacturers ----- | 9.2 | 3.0 | 5.3 | 9.0 | 10.0 |
| Ulrey & Company, A. A., Fairmount, Ind. Chop Feed ----- | 6241 | 6056 | Manufacturers ----- | 12.3 | 2.5 | 4.0 | 8.0 | 10.4 |
| Walker & Son., J. M., Middletown, Ind. Walker's Chop Feed ----- | 8164 | 6282 | Manufacturers ----- | 10.3 | 3.0 | 5.9 | 8.0 | 10.2 |
| Walton & Whisler, Atlanta, Ind. Chop Feed ----- | 5781 | 6091 | Manufacturers ----- | 11.3 | 3.0 | 4.2 | 8.7 | 10.0 |
| Wellington Milling Company, Anderson, Ind. Wellington's A. X. A. Chop Feed ----- | 5145 | 6289 | Manufacturers ----- | 10.1 | 3.0 | 4.5 | 9.0 | 9.3 |
| West Middleton Mill & Elevator Company, West Middleton, Ind. Chop Feed ----- | 6992 | 5725 | W. E. Hayes, Kokomo ----- | 10.9 | 3.0 | 4.9 | 9.0 | 9.7 |
| Chop Feed ----- | 6992 | 7000 | W. E. Hayes, Kokomo ----- | 9.3 | 3.0 | 4.5 | 9.0 | 10.4 |
| CORN, OATS, CORN FEED MEAL, CORN BRAN AND SCREENINGS | | | | | | | | |
| Clover Leaf Flour Mills, Kokomo, Ind. Clover Leaf Chop Feed ⁵⁷ ----- | 4448 | 5723 | Manufacturers ----- | 11.2 | 3.0 | 4.4 | 7.9 | 9.3 |
| Clover Leaf Chop Feed ----- | 4448 | 6880 | Manufacturers ----- | 9.5 | 3.0 | 4.3 | 7.9 | 10.7 |
| CORN, OATS, CORN FEED MEAL, CORN BRAN AND MILL SWEEP- INGS | | | | | | | | |
| Nodine, W. J., Waterloo, Ind. Nodine's Chop ----- | 7723 | 8237 | Manufacturer ----- | 9.2 | 2.4 | 2.9 | 8.3 | 11.8 |
| CORN, OATS, CORN FEED MEAL, CORN BRAN AND COB MEAL | | | | | | | | |
| Smock & Caca, Noblesville, Ind. Caca's Chop Feed ----- | 4483 | 6086 | Manufacturers ----- | 10.6 | 3.5 | 4.1 | 9.0 | 9.5 |
| CORN, OATS, CORN FEED MEAL, CORN BRAN, COB MEAL AND SCREENINGS FROM WHEAT, OATS AND CORN | | | | | | | | |
| Springer, W. D., Fortville, Ind. Mixed Feed ----- | 7363 | 7682 | Hardin Grain Co., Fortville ----- | 8.5 | 2.0 | 4.8 | 7.0 | 10.6 |
| CORN, OATS, RYE AND CORN FEED MEAL | | | | | | | | |
| Hershman & Son, Tipton, Ind. Chop Feed ----- | 4898 | 6095 | Manufacturers ----- | 11.1 | 3.2 | 4.6 | 8.7 | 10.4 |
| CORN, OATS, RYE, CORN FEED MEAL AND CORN BRAN | | | | | | | | |
| Bluffton Milling Company, Bluffton, Ind. Chop Feed ----- | 3397 | 6861 | Manufacturers ----- | 10.2 | 3.0 | 4.2 | 9.0 | 9.6 |
| Pearson, W. W., Upland, Ind. Chop Feed ----- | 5952 | 7648 | Manufacturer ----- | 9.2 | 2.5 | 4.2 | 8.0 | 10.4 |

⁵⁷ Wheat screenings not identified

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---------------------------------|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Radcliff Flour & Feed Exchange, E. M., Piercetn, Ind. | | | | | | | | |
| A. Chop Feed ----- | 7732 | 8052 | Manufacturers ----- | 8.8 | 3.0 | 3.1 | 9.0 | 12.3 |
| CORN, OATS, RYE, CORN FEED MEAL, WHEAT MIDDINGS AND CORN BRAN | | | | | | | | |
| Starr Mills, South Bend, Ind. | | | | | | | | |
| Chop Feed ----- | 6002 | 7302 | Manufacturers ----- | 9.1 | 3.0 | 4.5 | 9.0 | 11.1 |
| Chop Feed ----- | 6002 | 7504 | Manufacturers ----- | 9.0 | 3.0 | 5.1 | 9.0 | 11.2 |
| CORN, OATS, CORN FEED MEAL, CORN BRAN AND CORN SCREENINGS | | | | | | | | |
| Lemon Milling Company, The, Bedford, Ind. | | | | | | | | |
| Chop Feed ----- | 6804 | 5920 | Manufacturers ----- | 9.7 | 3.0 | 5.8 | 8.5 | 10.4 |
| CORN, OATS, WHEAT, CORN FEED MEAL, CORN BRAN AND CORN SCREENINGS | | | | | | | | |
| Wabash Milling Company, Wabash, Ind. | | | | | | | | |
| Summerton's Chop ----- | 5969 | 6605 | Manufacturers ----- | 10.4 | 2.0 | 3.4 | 8.0 | 9.3 |
| CORN, OATS, WHEAT AND SCREENINGS | | | | | | | | |
| Phillips & Ross Grain Company, Rosedale, Ind. | | | | | | | | |
| Mill Feed ----- | 3096 | 7628 | Manufacturers ----- | 10.8 | 2.0 | 3.2 | 5.0 | 10.4 |
| CORN, OATS, WHEAT, WEEDS SEEDS, COB MEAL, CHAFF AND SCREENINGS | | | | | | | | |
| Amo Mill & Elevator Company, Bargersville, Ind. | | | | | | | | |
| Chop Feed ----- | 8381 | 6011 | Manufacturers ----- | 11.2 | 3.0 | 3.2 | 9.0 | 10.7 |
| CORN, OATS, WHEAT BRAN, CORN BRAN AND SCREENINGS | | | | | | | | |
| Bridgeton Milling Company, Bridgeton, Ind. | | | | | | | | |
| Mixed Feed ----- | 6621 | 7625 | Manufacturers ----- | 10.0 | 4.0 | 4.1 | 9.3 | 11.5 |
| CORN, OATS, WHEAT BRAN, MID- DLINGS AND SCREENINGS | | | | | | | | |
| Moutoux, P. & H., Evansville, Ind. | | | | | | | | |
| "X L" Dry Mixed Feed ----- | 7997 | 6774 | Manufacturers ----- | 9.0 | 2.5 | 4.5 | 9.0 | 11.3 |
| CORN, OATS AND CORN FEED MEAL | | | | | | | | |
| Barlow, C. M., Kokomo, Ind. | | | | | | | | |
| Barlow's Chop Feed ----- | 5938 | 5721 | Manufacturer ----- | 11.0 | 3.0 | 4.1 | 9.0 | 9.0 |
| Barlow's Chop Feed ----- | 5938 | 7599 | Manufacturer ----- | 8.9 | 3.0 | 5.0 | 9.0 | 10.3 |
| Crawford Feed Store, Jay S., Crown Point, Ind. | | | | | | | | |
| Crawford's Chop Feed ----- | 5246 | 7333 | J. J. Baldwin, Crown Point.--- | 11.4 | 3.0 | 4.1 | 8.0 | 10.3 |
| Fornax Milling Company, Decatur, Ind. | | | | | | | | |
| Fornax Chop ----- | 7201 | 6037 | Manufacturers ----- | 10.6 | 3.5 | 4.7 | 9.0 | 10.1 |
| Hamilton & Kellner, Rensselaer, Ind. | | | | | | | | |
| "A" Chop Feed ----- | 5087 | 5500 | Kellner & Callahan, Rensselaer. | 10.8 | 3.0 | 4.4 | 8.0 | 10.5 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|------------------------------|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Havens, P. W., Hartford City, Ind. | | | | | | | | |
| Havens' Chop Feed ----- | 7688 | 6006 | Manufacturer ----- | 11.7 | 3.5 | 4.1 | 8.5 | 9.0 |
| Havens' Chop Feed ----- | 7688 | 7046 | Manufacturer ----- | 11.7 | 3.5 | 4.1 | 8.5 | 8.6 |
| Hibbitts Mill Company, Muncie, Ind. | | | | | | | | |
| Hibbitts Chop Feed ----- | 3708 | 7016 | Manufacturers ----- | 10.1 | 3.2 | 4.0 | 9.0 | 10.4 |
| Hibbitts Chop Feed ----- | 3708 | 7518 | Manufacturers ----- | 10.0 | 3.2 | 4.5 | 9.0 | 10.0 |
| Jay Grain Company, The, Elwood, Ind. | | | | | | | | |
| Chop Feed ----- | 7021 | 6422 | Manufacturers ----- | 9.8 | 3.8 | 4.3 | 9.0 | 9.8 |
| Jordan, Geo. M., Vincennes, Ind. G. M. J. Horse & Mule Chop ----- | 7619 | 7221 | Manufacturers ----- | 9.4 | 3.5 | 4.1 | 9.0 | 9.3 |
| Kennedy Bros., Crawfordsville, Ind. Chop Feed ----- | 5211 | 6921 | Manufacturers ----- | 9.6 | 3.0 | 4.3 | 8.5 | 9.1 |
| Klondike Milling Company, Danville, Ind. | | | | | | | | |
| Klondike Chop Feed ----- | 4430 | 5578 | Manufacturers ----- | 11.1 | 3.0 | 4.0 | 9.0 | 9.8 |
| Klondike Chop Feed ----- | 4430 | 6571 | Manufacturers ----- | 9.7 | 3.0 | 4.3 | 9.0 | 9.3 |
| Miller Flour & Feed Company, The Wesley, South Bend, Ind. | | | | | | | | |
| Chop Feed ----- | 4111 | 7275 | Manufacturers ----- | 9.9 | 3.5 | 3.9 | 9.0 | 10.1 |
| Chop Feed ----- | 4111 | 7538 | Manufacturers ----- | 10.0 | 3.5 | 4.6 | 9.0 | 11.1 |
| Paxson, C. E., Elkhart, Ind. | | | | | | | | |
| Chop Feed ----- | 6407 | 6497 | Manufacturer ----- | 11.1 | 3.0 | 3.9 | 9.0 | 9.8 |
| Chop Feed ----- | 6407 | 7555 | Manufacturer ----- | 9.9 | 3.0 | 4.4 | 9.0 | 11.1 |
| Rakestraw, H. E., Oakford, Ind. "A" Perfection Chop Feed ----- | 6496 | 6881 | Chamberlin & Templin, Kokomo | 8.8 | 3.5 | 4.1 | 9.0 | 9.4 |
| River Side Barn & Feed Store, Marion, Ind. | | | | | | | | |
| Chop Feed ----- | 7130 | 6360 | Manufacturers ----- | 10.2 | 2.8 | 4.1 | 8.5 | 10.4 |
| Russell & Company, Portland, Ind. Chop Feed ----- | 6798 | 6832 | Manufacturers ----- | 10.0 | 3.0 | 3.6 | 8.7 | 9.7 |
| Sellers, James S., Crawfordsville, Ind. Chop Feed ----- | 5213 | 6918 | Manufacturer ----- | 10.0 | 3.0 | 3.8 | 8.5 | 8.9 |
| Wells, Guy M., Knox, Ind. Wells' Chop Feed ----- | 6065 | 6256 | Manufacturer ----- | 9.9 | 3.2 | 4.1 | 8.3 | 10.4 |
| Wiegman & Zelt, Fort Wayne, Ind. Chop Feed ----- | 5179 | 5514 | Manufacturers ----- | 11.4 | 3.2 | 4.2 | 8.0 | 10.1 |
| CORN, OATS, CORN FEED MEAL AND SCREENINGS | | | | | | | | |
| Hammel Milling Company, Fremont, Ind. | | | | | | | | |
| Chop Feed ----- | 4048 | 7390 | Manufacturers ----- | 10.8 | 2.5 | 2.8 | 9.0 | 11.1 |
| Timbrook & Haifley, Auburn, Ind. Auburn Roller Mills Chop ----- | 6340 | 6576 | H. W. Timbrook, Auburn ----- | 9.2 | 3.9 | 4.3 | 9.5 | 10.5 |
| CORN, OATS, CORN FEED MEAL, SCREENINGS AND MILL SWEEPINGS | | | | | | | | |
| City Mills, South Whitley, Ind. Scrap Feed ----- | 8027 | 8075 | Manufacturers ----- | 8.4 | 2.5 | 5.4 | 8.0 | 10.3 |
| CORN, OATS, CORN BRAN AND SCREENINGS | | | | | | | | |
| Farmers Milling & Elevator Company, Veedersburg, Ind. | | | | | | | | |
| No. 1 Chop Feed ----- | 5597 | 6051 | Manufacturers ----- | 10.9 | 3.5 | 3.9 | 9.0 | 9.3 |
| No. 1 Chop Feed ----- | 5597 | 7158 | Manufacturers ----- | 10.3 | 3.5 | 4.2 | 9.0 | 9.7 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| CORN, OATS, CORN BRAN, CORN FEED MEAL AND GRAIN SCREENINGS | | | | | | | | |
| Haller & Walker, Eaton, Ind. Haller & Walker's Chop Feed ----- | 6690 | 7040 | Eaton Grain Co., Eaton ----- | 10.8 | 2.3 | 3.4 | 7.5 | 10.1 |
| CORN, OATS AND CORN SCREEN- INGS | | | | | | | | |
| Canal Elevator Company, Peru, Ind. ' Chop Feed ----- | 886 | 6608 | Manufacturers ----- | 10.1 | 3.2 | 4.0 | 8.8 | 9.7 |
| Chop Feed ----- | 886 | 8059 | Manufacturers ----- | 8.7 | 3.2 | 4.0 | 8.8 | 10.5 |
| CORN, CORN FEED MEAL, OAT MIDDLINGS, OAT SHORTS, OAT HULLS, CORN BRAN AND WHEAT SCREENINGS | | | | | | | | |
| Iroquois Roller Mills, Rensselaer, Ind. Mixed Chop Feed ----- | 6598 | 6953 | Manufacturers ----- | 9.5 | 2.0 | 6.0 | 7.5 | 10.7 |
| CORN, BARLEY, OAT MIDDINGS, OAT SHORTS, OAT HULLS AND SCREENINGS FROM WHEAT, OATS, BARLEY AND FLAX | | | | | | | | |
| International Sugar Feed Company, Minneapolis, Minn. International Chop Feed ⁵⁸ ----- | 7185 | 6033 | Niczer & Co., Monroeville ----- | 9.5 | 4.0 | 4.0 | 10.5 | 10.3 |
| CORN, WHEAT BRAN, WHEAT MIDDINGS AND HOMINY FEED | | | | | | | | |
| Acme-Evans Company, Indianapolis, Ind. Acme Farm Feed ----- | 8439 | 8014 | Salem Cooperative Assoc., Salem ----- | 9.4 | 5.0 | 4.3 | 12.0 | 15.2 |
| OATS, CORN FEED MEAL AND CORN SCREENINGS | | | | | | | | |
| McMillen & Son, J. W., Fort Wayne, Ind. Eagle Brand Chop Feed ----- | 8138 | 8369 | Manufacturers ----- | 9.5 | 2.5 | 3.6 | 7.5 | 10.0 |
| FEED MEAL FROM CORN, KAFIR, MILO AND WHEAT | | | | | | | | |
| Ashbrook Company, The J. S., Mattoon, Ill. Diamond A Feed Meal ⁵⁹ ----- | 8209 | 7234 | Smith Grocery Co., Clinton----- | 10.4 | 3.0 | 3.4 | 10.0 | 8.8 |
| GROUND SCREENINGS FROM CORN AND OATS | | | | | | | | |
| Crabbs Reynolds Taylor Company, Crawfordsville, Ind. Ground Corn and Oats Screenings----- | 8208 | 6913 | Manufacturers ----- | 9.3 | 3.0 | 3.6 | 9.0 | 9.8 |
| ALFALFA MEAL | | | | | | | | |
| Badenoch Company, J. J., Chicago, Ill. Alfalfa Meal ----- | 6535 | 5512 | Wiegman & Zelt, Fort Wayne-- | 7.8 | 1.0 | 1.6 | 13.0 | 15.2 |
| ††Alfalfa Meal ----- | 6535 | 7568 | Hoosier Wholesale Grocery Co., South Bend ----- | 8.1 | 1.0 | 1.7 | 13.0 | 14.4 |
| ††Alfalfa Meal ----- | 6535 | 8162 | Zelt Bros., Fort Wayne ----- | 7.1 | 1.0 | 1.8 | 13.0 | 14.9 |
| Denver Alfalfa Milling & Products Company, Hartman, Colo. ††Alfalfa Meal ----- | 7576 | 5827 | J. H. Shine & Co., New Albany-- | 9.9 | 1.5 | 1.8 | 12.0 | 15.3 |

⁷⁷ Not tagged. Labels furnished⁵⁸ Barley not identified⁵⁹ Withdrawn. Conflicting guarantees

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Edinger & Company, Louisville, Ky. ††Arrow Alfalfa Meal ----- | 8300 | 5888 | O. L. Cauble, Pekin ----- | 7.9 | 1.0 | 2.2 | 12.0 | 13.8 |
| Edwards & Loomis Company, Chicago, Ill. ††Red Comb Alfalfa Meal ----- | 3001 | 7496 | J. C. Barrett, South Bend ---- | 8.1 | 1.0 | 2.4 | 13.5 | 14.5 |
| Golden Grain Milling Company, East St. Louis, Ill. Golden Grain Alfalfa Meal ⁶⁰ ----- | 6291 | 6920 | Crabbs Reynolds Taylor Co., Crawfordsville ----- | 18.1 | 1.5 | 0.9 | 14.0 | 11.2 |
| Hurst & Company, Indianapolis, Ind. ††Alfalfa Meal ----- | 8484 | 6075 | Manufacturers ----- | 7.1 | 1.5 | 2.1 | 12.0 | 12.8 |
| McCoy & Garten, Indianapolis, Ind. Alfalfa Meal ----- | 8079 | 8021 | Manufacturers ----- | 6.8 | 0.5 | 1.6 | 12.0 | 13.4 |
| Peters Mill Company, M. C., Omaha, Neb. "Lucern" ----- | 3470 | 6642 | Prater-Mottier Co., Terre Haute | 9.6 | 0.5 | 2.1 | 12.0 | 15.7 |
| Purina Mills, Branch, Ralston Purina Company, St. Louis, Mo. Purina Alfalfa Meal ----- | 7352 | 5545 | Harting & Co., Elwood ----- | 8.6 | 1.5 | 1.7 | 14.0 | 14.7 |
| Purina Alfalfa Meal ⁶¹ ----- | 7352 | 6418 | Harting & Co., Elwood ----- | 8.2 | 1.5 | 1.6 | 14.0 | 12.0 |
| ††Purina Alfalfa Meal ----- | 7352 | 8328 | L. Thorn & Sons, New Albany--- | 7.1 | 1.5 | 1.5 | 14.0 | 13.0 |
| Union Grain & Coal Company, The, Anderson, Ind. ††Union Alfalfa Meal ----- | 6700 | 6063 | Pendleton Feed & Fuel Co., Pendleton ----- | 10.1 | 1.0 | 1.3 | 12.0 | 16.4 |
| Union Alfalfa Meal ----- | 6700 | 6285 | E. K. Sowash, Middletown ---- | 8.9 | 1.0 | 1.8 | 12.0 | 14.1 |
| Weiss Alfalfa Stock Food Co., The Otto Wichita, Kansas ††Pure Dustless Alfalfa ----- | 2098 | 5488 | Richard Hagans, Greenfield --- | 7.8 | 1.5 | 2.2 | 14.0 | 16.7 |
| BLOOD MEAL | | | | | | | | |
| Darling & Company, Chicago, Ill. ††Darling's Blood Meal ----- | 6309 | 6768 | Edw. F. Goeke Co., Evansville-- | 10.2 | --- | 0.5 | 80.0 | 81.2 |
| Darling's Blood Meal ----- | 6309 | 7621 | Ross Feed Store, Noblesville--- | 8.9 | --- | 0.4 | 80.0 | 85.9 |
| Major Bros. Packing Company, Mishawaka, Ind. Blood Meal ----- | 1971 | 5683 | D. L. Trout, Lee ----- | 38.3 | 1.0 | 0.5 | 55.0 | 57.0 |
| Blood Meal ----- | 1971 | 5979 | Brook Flour & Feed Mill, Brook | 35.2 | 1.0 | 0.7 | 55.0 | 56.7 |
| Blood Meal ----- | 1971 | 7546 | Manufacturers ----- | 31.7 | 1.0 | 1.0 | 55.0 | 54.3 |
| MEAT SCRAPS AND MEAT MEAL | | | | | | | | |
| American Agricultural Chemical Company, The, New York, N. Y. Pure Ground Meat Scraps ----- | 8105 | 6475 | McCoy & Garten, Indianapolis-- | 6.6 | 10.0 | 11.1 | 55.0 | 67.6 |
| Pure Ground Meat Scraps ----- | 8105 | 8183 | W. D. Henderson & Co., Fort Wayne ----- | 4.3 | 10.0 | 11.7 | 55.0 | 67.2 |
| Armour Fertilizer Works, Chicago, Ill. Armour's Meat Meal ----- | 6263 | 5884 | O. L. Cauble, Pekin ----- | 6.3 | 6.0 | 7.7 | 60.0 | 60.5 |
| Armour's Meat Meal ----- | 6263 | 6183 | W. J. Lawson, Chase ----- | 6.3 | 6.0 | 8.8 | 60.0 | 61.9 |
| Armour's Meat Meal ----- | 6263 | 7795 | Cutsinger & Thompson, Shelbyville ----- | 9.0 | 6.0 | 5.9 | 60.0 | 61.5 |
| Chicago Feed & Fertilizer Company, Magic Brand Meat Scraps ⁶² ----- | 6284 | 6288 | E. K. Sowash, Middletown ---- | 9.0 | 6.0 | 11.8 | 55.0 | 49.5 |
| ††Magic Brand Meat Scraps ⁶³ ----- | 6284 | 6351 | Scientific Milling Co., Marion--- | 7.2 | 6.0 | 15.5 | 55.0 | 47.9 |
| Magic Brand Meat Scraps ⁶⁴ ----- | 6284 | 7284 | Crabbs Reynolds Taylor Co., Lafayette ----- | 7.0 | 6.0 | 13.7 | 55.0 | 51.9 |

†† Not tagged. Labels furnished

⁶⁰ Molasses identified⁶¹ 1 ton removed from sale⁶² 1125 lbs. removed from sale⁶³ 300 lbs. removed from sale⁶⁴ 1 ton removed from sale. Relabeled No. 8621

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|--------------|--|---|---------------------|-------|-------------------------|-------|
| | Official | Inspection D | | | Guaranteed | Found | Guaranteed | Found |
| Darling & Company, Chicago, Ill. | | | | | | | | |
| Darling's Meat Scraps ----- | 4503 | 5757 | M. A. Conroy, Jeffersonville---- | 6.5 | 5.0 | 9.5 | 55.0 | 60.7 |
| Darling's Meat Scraps ----- | 4503 | 6989 | C. J. Loyd, Greensburg ----- | 7.8 | 5.0 | 8.8 | 55.0 | 58.1 |
| Darling's Meat Scraps ----- | 4503 | 7383 | Swayzee's Market, Marion ----- | 7.9 | 5.0 | 7.1 | 55.0 | 49.3 |
| Darling's Meat Scraps ^{64a} ----- | 4503 | 7417 | Purdue Poultry Farm, W. Lafayette ----- | 7.9 | 5.0 | 7.3 | 55.0 | 47.6 |
| Darling's Meat Scraps ⁶⁶ ----- | 4503 | 7537 | Wesley Miller Flour & Feed Co., South Bend ----- | 7.4 | 5.0 | 8.3 | 55.0 | 53.3 |
| Darling's Meat Scraps ⁶⁷ ----- | 4503 | 7816 | Edw. F. Goeke Co., Evansville---- | 6.4 | 5.0 | 9.6 | 55.0 | 56.2 |
| Darling's Meat Scraps ⁶⁸ ----- | 4503 | 7850 | W. H. Robbins Wholesale Grocery Co., Greensburg ----- | 7.5 | 5.0 | 8.9 | 55.0 | 60.0 |
| Darling's Meat Scraps ⁶⁹ ----- | 4503 | 8079 | H. E. Pitman, Bedford ----- | 6.8 | 5.0 | 8.0 | 55.0 | 55.1 |
| Darling's Meat Scraps ⁷⁰ ----- | 4503 | 8161 | Zelt Bros., Fort Wayne ----- | 7.8 | 5.0 | 7.9 | 55.0 | 64.7 |
| Darling's Meat Scraps ⁷¹ ----- | 4503 | 8240 | Shaw & Maxwell, Butler ----- | 5.8 | 5.0 | 9.7 | 55.0 | 54.1 |
| Darling's Meat Scraps ⁷² ----- | 4503 | 8256 | Frank Strock, Hudson ----- | 6.8 | 5.0 | 9.1 | 55.0 | 57.5 |
| Darling's Meat Scraps ⁷³ ----- | 4503 | 8257 | G. Wolff & Sons, Hamilton----- | 7.5 | 5.0 | 8.1 | 55.0 | 53.1 |
| Darling's Meat Scraps ⁷⁴ ----- | 4503 | 8263 | T. I. Ferris, Pleasant Lake----- | 7.6 | 5.0 | 8.2 | 55.0 | 54.8 |
| Darling's Meat Scraps ----- | 4503 | 8303 | J. P. Strock, Wolcottville----- | 7.4 | 5.0 | 9.7 | 55.0 | 60.4 |
| Darling's Standard Meat Scrap ⁷⁵ ----- | 5072 | 7653 | Purdue University, West Lafayette ----- | 8.7 | 0.5 | 6.6 | 45.0 | 55.5 |
| Morris & Company, Chicago, Ill. | | | | | | | | |
| Big Brand Meat Scraps ----- | 6905 | 7484 | B. I. Holser & Co., Walkerton---- | 6.3 | 7.0 | 7.3 | 55.0 | 58.6 |
| Big Brand Meat Scraps ----- | 6905 | 8329 | New Albany Milling Co., New Albany ----- | 4.2 | 7.0 | 8.3 | 55.0 | 60.7 |
| McCoy & Garten, Indianapolis, Ind. | | | | | | | | |
| McCoys Fancy Beef Scraps ----- | 5312 | 6562 | A. E. Lemasters, Greenwood---- | 7.5 | 6.0 | 10.7 | 50.0 | 49.8 |
| McCoys Fancy Beef Scraps ----- | 5312 | 7358 | Manufacturer ----- | 7.0 | 6.0 | 11.9 | 50.0 | 52.7 |
| Rauh & Sons Animal Feed Company, E., Indianapolis, Ind. | | | | | | | | |
| Rauh's Meat Scraps for Poultry ----- | 7246 | 5892 | Pierce Elevator Co., Union City | 7.1 | --- | 12.8 | 50.0 | 49.1 |
| Rauh's Meat Scraps for Poultry ----- | 7246 | 7418 | Indiana Seed Co., Indianapolis---- | 7.2 | --- | 11.1 | 50.0 | 50.9 |
| Rauh's Meat Scraps for Poultry ⁷⁶ ----- | 7246 | 7685 | McCoy & Garten, Indianapolis---- | 6.2 | --- | 11.7 | 50.0 | 53.0 |
| Rauh's Meat Scraps for Poultry ⁷⁷ ----- | 7246 | 7921 | Omer G. Whelan, Richmond----- | 6.3 | --- | 11.9 | 50.0 | 52.2 |
| Rauh's Meat Scraps for Poultry ⁷⁸ ----- | 7246 | 8023 | Indiana Seed Co., Indianapolis---- | 5.7 | --- | 8.0 | 50.0 | 47.7 |
| Rauh's Meat Scraps for Poultry ⁷⁹ ----- | 7246 | 8372 | Omer G. Whelan, Richmond----- | 6.5 | --- | 10.3 | 50.0 | 56.6 |
| Swift & Company, Chicago, Ill. | | | | | | | | |
| Swift's Meat Meal ----- | 6953 | 8374 | C. A. Mendenhall, Economy----- | 3.9 | 6.0 | 6.4 | 46.0 | 57.5 |
| Swift's Meat Scraps ----- | 6953 | 6592 | C. E. Bash & Co., Huntington---- | 5.7 | 8.0 | 10.3 | 50.0 | 56.7 |
| Swift's Meat Scraps ----- | 6953 | 8154 | C. F. Cattron, Westville ----- | 5.4 | 8.0 | 9.2 | 50.0 | 56.5 |
| Swift's Meat Scraps ----- | 6953 | 8157 | Reed Bros. Coal & Feed Co., Ft. Wayne ----- | 5.7 | 8.0 | 10.0 | 50.0 | 53.0 |
| Swift's Meat Scraps ----- | 6953 | 8158 | Kraus & Apfelbaum, Ft. Wayne---- | 5.2 | 8.0 | 11.0 | 50.0 | 54.3 |
| Wuichet Fertilizer Company, The, Dayton, Ohio | | | | | | | | |
| Ground Beef Scrap ----- | 3958 | 7708 | Geo. Niemeyer & Sons, Dillsboro---- | 9.3 | 10.0 | 10.1 | 50.0 | 71.3 |
| MEAT AND BONE MEAL | | | | | | | | |
| Clinton Manufacturing Company, Frankfort, Ind. | | | | | | | | |
| C. M. C. Meat and Bone Meal ⁸⁰ ----- | 5547 | 7769 | Manufacturers ----- | 7.8 | 12.0 | 17.5 | 45.0 | 45.1 |
| †† Not tagged. Labels furnished | | | | ⁷³ 100 lbs. removed from sale. Salt, stomach offal and large quantity of sand present. Returned to mfr. | | | | |
| ^{64a} 800 lbs. removed from sale. Returned to mfr. | | | | Returned to Edon, Ohio | | | | |
| ⁶⁵ Federal sample taken and found deficient in protein. Contains glass and seizure of goods was made | | | | ⁷⁴ 2 tons removed from sale. Sand and stomach offal present | | | | |
| ⁶⁶ 900 lbs. removed from sale. Relabeled with No. 5072. Refund. See page 20 | | | | ⁷⁵ Conflicting guarantees | | | | |
| ⁶⁷ Appreciable amount of sand present | | | | ⁷⁶ Contains appreciable amount of glass and approx. 2% sand | | | | |
| ⁶⁸ Contains stomach offal and appreciable amount of sand | | | | ⁷⁷ 300 lbs. removed from sale. Stomach offal and large quantity of sand present. Returned to mfr. | | | | |
| ⁶⁹ 2 ⁹ / ₂₀ tons removed from sale. Stomach offal and appreciable amount of sand present. Relabeled No. 9057 | | | | ⁷⁸ 6 ¹⁷ / ₂₀ tons removed from sale. Appreciable amount of sand and excess bone present. Returned to mfrs. | | | | |
| ⁷⁰ Small amount of glass and appreciable amount of sand present | | | | ⁷⁹ 3 ¹ / ₂ tons removed from sale. Appreciable amount of sand present. Returned to mfr. | | | | |
| ⁷¹ 1 ⁰ / ₂₀ tons removed from sale. Stomach offal and large quantity of sand present | | | | ⁸⁰ Stomach offal present | | | | |
| ⁷² Stomach offal and appreciable amounts of sand and glass present | | | | | | | | |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|--------------|---|--------------------|---------------------|-------|-------------------------|-------|
| | Official | Inspection D | | | Guar-anteed | Found | Guar-anteed | Found |
| McCoy & Garten, Indianapolis, Ind. ††Fancy Meat & Bone ----- | 8463 | 6080 | Manufacturers ----- | 5.1 | 8.0 | 7.8 | 42.0 | 46.8 |
| Rauh & Sons Animal Feed Company, E., Indianapolis, Ind. Rauh's Meat Meal ⁸¹ ----- | 6076 | 5343 | Mack Beuoy, Gaston ----- | 5.5 | --- | 12.1 | 80.0 | 78 3 |
| *Meat Meal ----- | ----- | 5997 | Wm. F. Pruesner, Knox ----- | 6.9 | --- | 11.0 | --- | 79.0 |
| Meatone ⁸² ----- | 8087 | 5787 | Suckow Co., Franklin ----- | 6.8 | --- | 5.6 | 50.0 | 50.9 |
| Meatone ⁸² ----- | 8087 | 6060 | Hardin Grain Co., Fortville ----- | 8.4 | --- | 9.7 | 50.0 | 50.0 |
| Meatone ⁸² ----- | 8087 | 6115 | Suckow Co., Franklin ----- | 8.2 | --- | 8.2 | 50.0 | 51.4 |
| Meatone ⁸² ----- | 8087 | 6175 | Suckow Co., Franklin ----- | 8.0 | --- | 6.0 | 50.0 | 53.3 |
| Meatone ⁸² ----- | 8087 | 6237 | Omer G. Whelan, Richmond ----- | 9.3 | --- | 8.4 | 50.0 | 51.6 |
| Meatone ⁸² ----- | 8087 | 6340 | Goodrich Bros. Hay & Grain Co., Gaston ----- | 9.1 | --- | 7.4 | 50.0 | 54.7 |
| Meatone ----- | 8087 | 7014 | Goodrich Bros. Hay & Grain Co., Winchester ----- | 7.2 | --- | 5.2 | 50.0 | 50.6 |
| Meatone ⁸² ----- | 8087 | 7333 | Sheridan Milling Co., Sheridan ----- | 10.9 | --- | 4.8 | 50.0 | 52.4 |
| Meatone ⁸³ ----- | 8087 | 7345 | Indiana Seed Co., Indianapolis ----- | 8.3 | --- | 5.9 | 50.0 | 48 5 |
| Meatone ⁸² ----- | 8087 | 7416 | L. S. Ulrich, Sharpsville ----- | 9.4 | --- | 7.0 | 50.0 | 49.9 |
| Meatone ⁸⁴ ----- | 8087 | 7619 | Lacy Feed Store, Noblesville ----- | 8.7 | --- | 5.0 | 50.0 | 50.9 |
| Meatone ⁸⁴ ----- | 8087 | 7642 | Indiana Seed Co., Indianapolis ----- | 9.4 | --- | 5.1 | 50.0 | 51.8 |
| Meatone ⁸⁵ ----- | 8087 | 7784 | Farmers Elevator Co., Jamestown ----- | 8.9 | --- | 5.7 | 50.0 | 50.9 |
| Meatone ⁸⁶ ----- | 8087 | 8024 | Indiana Seed Co., Indianapolis ----- | 9.3 | --- | 5.2 | 50.0 | 50.7 |
| Meatone ⁸⁷ ----- | 8087 | 8345 | Suckow Co., Franklin ----- | 8.0 | --- | 6.5 | 50.0 | 51.6 |
| Meatone ⁸² ----- | 8087 | 8381 | O. G. Whelan, Richmond ----- | 9.8 | --- | 8.8 | 50.0 | 53.1 |
| TANKAGE | | | | | | | | |
| Anderson Fertilizer Company, Anderson, Ind. Phillips Feeding Tankage ----- | 8387 | 5987 | Manufacturers ----- | 12.9 | 8.0 | 18.2 | 36.0 | 49.5 |
| Angola Reduction Company, Angola, Ind. Tankage ⁸⁷ ----- | 5358 | 8252 | Manufacturers ----- | 3.5 | 8.0 | 12.2 | 40.0 | 53 3 |
| Ballard Packing Company, Marion, Ind. Feeding Tankage ----- | 5082 | 6357 | Manufacturers ----- | 6.6 | 8.0 | 11.1 | 36.0 | 38.2 |
| Feeding Tankage ⁸⁷ ----- | 5082 | 7447 | Manufacturers ----- | 10.2 | 8.0 | 9.2 | 36.0 | 37.7 |
| Bradley, John F., Zionsville, Ind. *Tankage ----- | --- | 8344 | Zionsville Tankage Plant, Zionsville ----- | 63.8 | --- | 8.3 | --- | 22.5 |
| Brook Flour & Feed Mill, Brook, Ind. Rising Sun Brand Digester Tankage ⁸⁸ ----- | 8221 | 5008 | Manufacturers ----- | 13.6 | 5.0 | 5.7 | 60.0 | 34.8 |
| Butler & Company, Edw. J., Chicago, Ill. Butler's Premium Digester Tankage ⁸⁹ ----- | 7990 | 7179 | Worthington Grain Co., Worthington ----- | 8.8 | 6.0 | 5.1 | 60.0 | 61.7 |
| Butler's Premium Digester Tankage ⁹⁰ ----- | 7990 | 7210 | D. A. Rumple, Berne ----- | 8.7 | 6.0 | 4.8 | 60.0 | 60.5 |
| Butler's Premium Digester Tankage ⁸⁹ ----- | 7990 | 7468 | Cooperative Elevator Co., Winamac ----- | 8.6 | 6.0 | 8.9 | 60.0 | 58.4 |
| Chicago Feed & Fertilizer Company, Chicago, Ill. Magic Brand Tankage ⁹¹ ----- | 6398 | 5568 | Judson Creamery & Produce Co., N. Judson ----- | 8.1 | 5.0 | 7.3 | 60.0 | 57 5 |
| Magic Brand Tankage ----- | 6398 | 5674 | Goshen Milling Co., Goshen ----- | 7.8 | 5.0 | 5.0 | 60.0 | 61.2 |

* Not tagged

†† Not tagged. Labels furnished

⁸¹ Refund. See page 20⁸² Stomach offal present⁸³ Appreciable amount of glass and stomach offal present. 17 tons replaced with new stock⁸⁴ Stomach offal and glass present⁸⁵ 40 tons removed from sale. Stomach offal, approx. 5% sand and glass present. Ship-ment replaced⁸⁶ Stomach offal and appreciable amount of sand and glass present⁸⁷ Stomach offal and appreciable amount of sand present⁸⁸ 2 tons withdrawn. Refund. See page 20⁸⁹ Stomach offal present⁹⁰ Stomach offal and considerable fine ground glass and sand present⁹¹ 3½ tons withdrawn. Relabeled No. 7974. Refund. See page 20. Stomach offal present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Chicago Feed & Fertilizer Company, Chicago, Ill. | | | | | | | | |
| Magic Brand Tankage ⁹² ----- | 6368 | 5980 | Brook Flour & Feed Mill, Brook ----- | 8.7 | 5.0 | 7.7 | 60.0 | 56.6 |
| Magic Brand Tankage ⁹³ ----- | 6368 | 6081 | D. L. Trout, Lee ----- | 9.9 | 5.0 | 5.8 | 60.0 | 58.8 |
| Magic Brand Tankage ----- | 6368 | 6117 | Crabbs Reynolds Taylor Co., Crawfordsville ----- | 9.0 | 5.0 | 5.4 | 60.0 | 60.6 |
| Magic Brand Tankage ----- | 6368 | 6118 | Myers Bros., Linnsburg ----- | 7.9 | 5.0 | 5.4 | 60.0 | 61.1 |
| Magic Brand Tankage ⁹² ----- | 6368 | 6182 | W. J. Lawson, Chase ----- | 10.3 | 5.0 | 3.9 | 60.0 | 63.8 |
| Magic Brand Tankage ⁹² ----- | 6368 | 6421 | Harting & Co., Elwood ----- | 10.0 | 5.0 | 3.6 | 60.0 | 58.9 |
| Magic Brand Tankage ⁹⁴ ----- | 6368 | 7201 | H. E. Rakestraw, Oakford ----- | 8.6 | 5.0 | 2.9 | 60.0 | 58.5 |
| Magic Brand Tankage ⁹⁵ ----- | 6368 | 7281 | R. E. Findling, Arcadia ----- | 8.6 | 5.0 | 2.4 | 60.0 | 61.3 |
| Magic Brand Tankage ⁹⁶ ----- | 6368 | 7308 | Hurst & Co., Indianapolis ----- | 7.9 | 5.0 | 2.4 | 60.0 | 61.2 |
| Magic Brand Tankage ⁹⁷ ----- | 6338 | 7320 | Loughry Bros. Milling & Grain Co., Monticello ----- | 10.1 | 5.0 | 4.8 | 60.0 | 60.1 |
| Magic Brand Tankage ⁹⁸ ----- | 6368 | 7349 | R. P. Allee, Coatsville ----- | 9.2 | 5.0 | 2.3 | 60.0 | 60.8 |
| Magic Brand Tankage ⁹⁸ ----- | 6368 | 7349 | J. A. Jenkins, Danville ----- | 8.7 | 5.0 | 2.4 | 60.0 | 61.0 |
| Magic Brand Tankage ⁹⁸ ----- | 6368 | 7356 | Frank R. Robbins, Greensburg ----- | 8.8 | 5.0 | 2.4 | 60.0 | 60.2 |
| Magic Brand Tankage ⁹⁹ ----- | 6368 | 7441 | Harting & Co., Elwood ----- | 7.7 | 5.0 | 4.1 | 60.0 | 59.9 |
| Magic Brand Tankage ----- | 6368 | 7597 | C. M. Barlow, Kokomo ----- | 8.8 | 5.0 | 3.6 | 60.0 | 61.4 |
| Magic Brand Tankage ¹⁰⁰ ----- | 6368 | 8142 | Farmers Elevator, Kempton ----- | 8.6 | 5.0 | 4.2 | 60.0 | 58.9 |
| Magic Brand Tankage ¹⁰¹ ----- | 6368 | 8143 | L. O. Teter, Tipton ----- | 8.6 | 5.0 | 4.1 | 60.0 | 58.9 |
| Magic Brand Tankage ¹⁰² ----- | 6368 | 8333 | Morrison & Teegarden, Saratoga ----- | 6.5 | 5.0 | 4.2 | 60.0 | 57.7 |
| *Magic Brand Digester Tankage ⁹² ----- | | 7252 | Chicago Feed & Fertilizer Co., Osborne ----- | 8.3 | --- | 4.2 | --- | 61.0 |
| Cincinnati Animal Food Company, Cincinnati, Ohio. | | | | | | | | |
| "Porkopolis" Brand Digester Tankage | 6728 | 5483 | Crabbs Reynolds Taylor Co., Crawfordsville ----- | 8.8 | 8.0 | 8.4 | 60.0 | 59.2 |
| "Porkopolis" Brand Digester Tankage | 6728 | 5523 | James H. Harper, Sharpsville ----- | 7.4 | 8.0 | 7.5 | 60.0 | 61.4 |
| Cleveland Provision Company, The, Cleveland, Ohio | | | | | | | | |
| Premium Digester Tankage ¹⁰³ ----- | 5712 | 8136 | Middlebury Grain Co., Middlebury ----- | 9.3 | 7.0 | 7.2 | 60.0 | 60.8 |
| Clendenin & Company, Richmond, Ind. Feeding Tankage ¹⁰⁴ ----- | 2132 | 6253 | Lewisville Elevator Co., Lewisville ----- | 7.3 | 13.0 | 17.6 | 45.0 | 39.0 |
| Columbus Sanitary Reduction Company, Columbus, Ind. | | | | | | | | |
| Feeding Tankage ----- | 8182 | 5460 | Manufacturers ----- | 4.9 | 15.0 | 18.9 | 45.0 | 42.8 |
| Connelly, Clare, Judson, Ind. Tankage ----- | 6364 | 7630 | Manufacturer ----- | 12.6 | 6.0 | 16.5 | 38.0 | 59.4 |
| Darling & Company, Chicago, Ill. | | | | | | | | |
| Darling's Hog Cents Digester Tankage | 4733 | 6034 | Maumee Valley Mills, New Haven ----- | 14.6 | 0.5 | 1.9 | 40.0 | 43.2 |
| Darling's Hog Cents Digester Tank- age ¹⁰⁵ ----- | 4733 | 7217 | Geo. M. Jordan, Vincennes ----- | 8.4 | 0.5 | 1.1 | 40.0 | 41.8 |
| Darling's 60% Digester Tankage ¹⁰⁶ ----- | 4734 | 5724 | W. E. Hayes, Kokomo ----- | 8.9 | 0.5 | 5.6 | 60.0 | 60.0 |
| Darling's 60% Digester Tankage ¹⁰⁶ ----- | 4734 | 6147 | Krause & Apfelbaum, Ft. Wayne ----- | 12.0 | 0.5 | 1.1 | 60.0 | 59.2 |
| Darling's 60% Digester Tankage ¹⁰⁷ ----- | 4734 | 6854 | H. C. Arnold & Son, Bluffton ----- | 10.7 | 0.5 | 2.0 | 60.0 | 58.0 |

* Not tagged

⁹² Stomach offal present⁹³ Refund. See page 20⁹⁴ 300 lbs. removed from sale. Stomach offal and considerable pulverized glass present⁹⁵ 2 1/4 tons returned to distributor and replaced with other goods. Stomach offal and appreciable amount of glass present⁹⁶ 1500 lbs. removed from sale. Stomach offal and appreciable amount of glass present⁹⁷ 1500 lbs. removed from sale. Stomach offal present⁹⁸ Stomach offal and appreciable amount fine glass present⁹⁹ 6% tons removed from sale. Returned to mfrs. Stomach offal, appreciable amount of glass present¹⁰⁰ Same shipment as D8143¹⁰¹ Appreciable amount of sand, small amount of glass present. Refund. See page 20¹⁰² 2 1/2 tons removed from sale. Returned to mfrs. Stomach offal and approx. 3% glass present¹⁰³ Stomach offal, small amount glass present¹⁰⁴ 300 lbs. returned to mfrs. Refund. See page 20¹⁰⁵ Stomach offal, appreciable amount glass and sand present¹⁰⁶ Stomach offal present¹⁰⁷ 1900 lbs. removed from sale. Stomach offal present. Returned to mfrs.

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|--------------|---|--------------------|---------------------|-------|-------------------------|-------|
| | Official | Inspection D | | | Guar-anteed | Found | Guar-anteed | Found |
| Darling & Company, Chicago, Ill. | | | | | | | | |
| Darling's 60% Digester Tankage ¹⁰⁸ --- | 4734 | 7123 | Kraus & Apfelbaum, Ft. Wayne ----- | 10.4 | 0.5 | 3.1 | 60.0 | 59.9 |
| Darling's 60% Digester Tankage ¹⁰⁹ --- | 4734 | 7303 | G. W. Wolff & Sons, Hamilton | 9.7 | 0.5 | 5.0 | 60.0 | 62.4 |
| Darling's 60% Digester Tankage ¹¹⁰ --- | 4734 | 7431 | Berne Grain & Hay Co., Berne | 9.8 | 0.5 | 0.6 | 60.0 | 63.5 |
| Darling's 60% Digester Tankage ¹¹¹ --- | 4734 | 7584 | S. D. Bailey Co., Wanatah----- | 11.4 | 0.5 | 1.5 | 60.0 | 60.5 |
| Darling's 60% Digester Tankage ¹¹² --- | 4734 | 7711 | Kraus & Apfelbaum, Ft. Wayne | 9.9 | 0.5 | 0.7 | 60.0 | 61.1 |
| Darling's 60% Digester Tankage ¹¹³ --- | 4734 | 7766 | Harry Pinney, Wanatah----- | 11.2 | 0.5 | 0.5 | 60.0 | 61.2 |
| Darling's 60% Digester Tankage ¹¹⁴ --- | 4734 | 7925 | Studebaker Grain & Seed Co., Van Buren ----- | 9.1 | 0.5 | 1.1 | 60.0 | 58.1 |
| Darling's 60% Digester Tankage ¹¹⁵ --- | 4734 | 7927 | Studebaker Grain & Seed Co., Bluffton ----- | 8.3 | 0.5 | 5.2 | 60.0 | 60.7 |
| Darling's 60% Digester Tankage ¹¹⁶ --- | 4734 | 8070 | S. F. Trembley Co., Columbia City ----- | 10.4 | 0.5 | 1.6 | 60.0 | 62.4 |
| Darling's 60% Digester Tankage ¹¹⁷ --- | 4734 | 8080 | H. E. Pitman, Bedford----- | 9.8 | 0.5 | 4.9 | 60.0 | 62.9 |
| Darling's 60% Digester Tankage ¹¹⁸ --- | 4734 | 8137 | Middlebury Grain Co., Middlebury ----- | 8.7 | 0.5 | 1.3 | 60.0 | 59.3 |
| Darling's 60% Digester Tankage ¹¹⁹ --- | 4734 | 8239 | Shaw & Maxwell, Butler----- | 12.0 | 0.5 | 1.5 | 60.0 | 58.9 |
| Darling's 60% Digester Tankage ¹²⁰ --- | 4734 | 8255 | Frank Strock, Hudson----- | 8.7 | 0.5 | 5.2 | 60.0 | 63.7 |
| Darling's 60% Digester Tankage ¹²¹ --- | 4734 | 8392 | J. P. Strock, Wolcottville----- | 11.2 | 0.5 | 0.7 | 60.0 | 62.7 |
| Darling's 60% Digester Tankage ¹²² --- | 4734 | 8370 | T. I. Ferris, Pleasant Lake----- | 9.1 | 0.5 | 4.9 | 60.0 | 62.5 |
| Daudistel, Henry, Evansville, Ind. | | | | | | | | |
| Feeding Tankage ¹²³ ----- | 8599 | 7806 | Geo. W. Brown, Evansville----- | 6.7 | 8.0 | 9.6 | 40.0 | 33.8 |
| Feeding Tankage ¹²⁴ ----- | 8599 | 7807 | Edward F. Goeke Co., Evansville | 7.5 | 8.0 | 9.7 | 40.0 | 34.4 |
| Feeding Tankage ¹²⁵ ----- | 8599 | 8166 | John Wilkinson, Boonville----- | 7.3 | 8.0 | 9.0 | 40.0 | 35.4 |
| Feeding Tankage ¹²⁶ ----- | 8599 | 8167 | J. H. Burkhart, Boonville----- | 7.4 | 8.0 | 9.6 | 40.0 | 34.2 |
| Decatur Fertilizer Company, Decatur, Ind. | | | | | | | | |
| Tankage ----- | 7438 | 7114 | Manufacturers ----- | 8.0 | 7.0 | 9.9 | 35.0 | 55.6 |
| DeKalb Tanking Company, Auburn Junction, Ind. | | | | | | | | |
| Feeding Tankage ----- | 8038 | 8233 | Manufacturers ----- | 38.9 | 8.0 | 9.4 | 25.0 | 31.3 |
| Delphi Fertilizer Company, The, Delphi, Ind. | | | | | | | | |
| Feeding Tankage ----- | 8052 | 6950 | Manufacturers ----- | 4.3 | 12.0 | 18.1 | 35.0 | 38.4 |
| Eckart Packing Company, Fred, Ft. Wayne, Ind. | | | | | | | | |
| Eckart's Feeding Tankage ----- | 6055 | 5530 | Manufacturers ----- | 14.6 | 9.0 | 15.4 | 28.0 | 37.3 |
| Eckart's Feeding Tankage ¹²⁷ ----- | 6055 | 7099 | Berne Milling Co., Berne----- | 5.2 | 9.0 | 12.0 | 28.0 | 35.1 |
| Eckart's Feeding Tankage ----- | 6055 | 8188 | Manufacturers ----- | 16.2 | 9.0 | 11.1 | 28.0 | 31.1 |
| Elkhart Fertilizer Company, Elkhart, Ind. | | | | | | | | |
| Feeding Tankage ----- | 6504 | 8307 | Elkhart County Fertilizer Co., Wakarusa ----- | 4.6 | 8.0 | 20.1 | 44.0 | 62.9 |

† Before registration

¹⁰⁸ 15 tons removed from sale. Stomach offal present¹⁰⁹ 3 tons removed from sale. Appreciable amount of glass and sand present. Returned to mfrs.¹¹⁰ 1 3/20 tons removed from sale. Stomach offal, glass and sand present. Returned to mfrs. Refund. See page 20¹¹¹ 1400 lbs. returned to mfrs. Stomach offal, appreciable amount of glass, approx. 1.4% sand present¹¹² 3 2/20 tons removed from sale. Returned to mfrs. Stomach offal, appreciable amount of sand and glass present¹¹³ 1 1/4 tons removed from sale. Stomach offal, glass present¹¹⁴ 11/20 ton removed from sale. Returned to mfr.¹¹⁵ 5 8/20 tons removed from sale. Stomach offal, large amount of sand present. Returned to mfr.¹¹⁶ Stomach offal, appreciable amount of glass present¹¹⁷ 1 3/4 tons removed from sale. Appreciable quantity of sand present. Relabeled No. 9068¹¹⁸ Appreciable amount of sand, stomach offal present¹¹⁹ Stomach offal, large amount of sand, appreciable amount of glass present¹²⁰ 1600 lbs. returned to mfrs. Stomach offal, appreciable quantity of glass and sand present¹²¹ Stomach offal, appreciable amount sand present. 1600 lbs. returned¹²² Stomach offal, appreciable amount sand present¹²³ Stomach offal, appreciable amount sand present. Relabeled No. 9082. Refund. See page 20¹²⁴ Stomach offal present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Evansville Packing Company, Evansville, Ind. | | | | | | | | |
| 60% Stock Feeding Tankage | 7403 | 5629 | Henry Dugan, Owensville | 8.2 | 15.0 | 10.4 | 60.0 | 60.2 |
| 60% Stock Feeding Tankage | 7403 | 5634 | Henry Schnur, Mt. Vernon | 6.3 | 15.0 | 8.7 | 60.0 | 56.2 |
| 60% Stock Feeding Tankage | 7403 | 5675 | Manufacturers | 6.7 | 15.0 | 9.5 | 60.0 | 60.5 |
| 60% Stock Feeding Tankage | 7403 | 5813 | American Cooperative Assoc., Boonville | 7.8 | 15.0 | 9.2 | 60.0 | 63.3 |
| 60% "Feeding Tankage" ¹²⁴ | 8298 | 7821 | W. H. Small & Co., Evansville | 7.1 | 8.0 | 5.7 | 60.0 | 61.6 |
| Farmers Tanking & Fertilizer Company, Muncie, Ind. | | | | | | | | |
| White River Feeding Tankage | 7860 | 5916 | Manufacturers | 12.3 | 10.0 | 12.8 | 45.0 | 50.0 |
| White River Feeding Tankage ¹²⁵ | 7860 | 6312 | Manufacturers | 12.9 | 10.0 | 13.1 | 45.0 | 59.6 |
| Goldreich Fertilizer Company, Marion, Ind. | | | | | | | | |
| Feeding Tankage | 4352 | 6356 | Manufacturers | 9.1 | 11.0 | 16.1 | 45.0 | 44.8 |
| Feeding Tankage ¹²⁶ | 4352 | 7438 | Manufacturers | 6.0 | 11.0 | 14.7 | 45.0 | 40.0 |
| Feeding Tankage ¹²⁷ | 4352 | 7926 | Manufacturers | 10.3 | 11.0 | 11.6 | 45.0 | 42.8 |
| Hancock Fertilizer Company, The, Greenfield, Ind. | | | | | | | | |
| Feeding Tankage | 7659 | 7425 | Manufacturers | 6.4 | 6.0 | 17.7 | 40.0 | 41.4 |
| Holzappel, Henry, Richmond, Ind. | | | | | | | | |
| Feeding Tankage ¹²⁸ | 3551 | 6235 | J. F. Maher Cold Storage, Richmond | 3.3 | --- | 18.9 | 28.0 | 25.4 |
| Home Packing & Ice Company, Terre Haute, Ind. | | | | | | | | |
| Digester Meat & Bone Tankage | 7450 | 5688 | Overpeck & Branson, Rockville | 10.9 | 10.0 | 13.9 | 32.0 | 34.0 |
| Digester Meat & Bone Tankage ¹²⁹ | 7450 | 5699 | Manufacturers | 7.8 | 10.0 | 12.7 | 32.0 | 35.5 |
| Digester Meat & Bone Tankage ¹²⁹ | 7450 | 5705 | Sam Milligan, Jr., Waveland | 10.2 | 10.0 | 12.0 | 32.0 | 36.9 |
| Digester Meat & Bone Tankage | 7450 | 6658 | Manufacturers | 12.1 | 10.0 | 11.7 | 32.0 | 38.5 |
| Digester Meat & Bone Tankage ¹²⁸ | 7450 | 6927 | Schultz Bros., Elberfeld | 5.3 | 10.0 | 9.7 | 32.0 | 37.0 |
| Huntington Fertilizer Company, Huntington, Ind. | | | | | | | | |
| Farmers Commercial Feeding Tankage | 6247 | 6597 | Manufacturers | 3.9 | 15.0 | 19.1 | 50.0 | 39.6 |
| Farmers Commercial Feeding Tankage ¹²⁹ | 6247 | 7590 | Weber & Purviance, Huntington | 4.8 | 15.0 | 16.5 | 50.0 | 40.8 |
| Independent Feed & Fertilizer Company, Indianapolis, Ind. | | | | | | | | |
| Digester Tankage, Clover Leaf ¹³⁰ | 8503 | 7202 | Crabbs Reynolds Taylor Co., Lafayette | 7.1 | 6.0 | 9.3 | 60.0 | 31.7 |
| Digester Tankage, Clover Leaf ¹³¹ | 8503 | 7245 | Prater-Mottier Co., Terre Haute | 5.2 | 6.0 | 9.6 | 60.0 | 38.8 |
| Digester Tankage, Clover Leaf ¹³² | 8503 | 7253 | Uhl-Snyder Milling Co., Connersville | 6.6 | 6.0 | 9.0 | 60.0 | 36.8 |
| Digester Tankage, Clover Leaf ¹³³ | 8503 | 7254 | Shirley & Jones, Lebanon | 5.8 | 6.0 | 9.3 | 60.0 | 39.1 |
| Digester Tankage, Clover Leaf ¹³⁴ | 8503 | 7255 | Uhl-Snyder Milling Co., Connersville | 5.4 | 6.0 | 10.4 | 60.0 | 39.6 |
| Digester Tankage, Clover Leaf ¹³⁵ | 8503 | 7256 | Manufacturer | 5.6 | 6.0 | 9.8 | 60.0 | 37.6 |
| Digester Tankage, Clover Leaf ¹³⁶ | 8503 | 7424 | Crabbs Reynolds Taylor Co., Lafayette | 7.7 | 6.0 | 4.5 | 60.0 | 60.1 |
| Digester Tankage, Clover Leaf ¹³⁶ | 8503 | 7442 | Harting & Co., Elwood | 5.5 | 6.0 | 8.1 | 60.0 | 37.4 |
| Digester Tankage, Clover Leaf | 8503 | 7519 | Lou Puckett, Shidler | 7.6 | 6.0 | 4.7 | 60.0 | 61.1 |
| Digester Tankage, Clover Leaf | 8503 | 7796 | Morrison & DePrez Drug Co., Shelbyville | 7.2 | 6.0 | 3.7 | 60.0 | 60.7 |
| Digester Tankage, Clover Leaf | 8503 | 7859 | E. E. Whicker, Sandusky | 6.8 | 6.0 | 3.8 | 60.0 | 61.0 |
| Digester Tankage, Clover Leaf ¹³⁷ | 8503 | 7864 | Richards & Lawson, Shelbyville | 6.1 | 6.0 | 8.6 | 60.0 | 37.8 |
| Digester Tankage, Clover Leaf | 8503 | 8287 | Scottsburg Elevator, Scottsburg | 7.1 | 6.0 | 3.5 | 60.0 | 63.3 |

¹²⁵ Stomach offal present¹²⁶ 1 ton removed from sale¹²⁷ 5 tons removed from sale. Stomach offal present¹²⁸ 688 lbs. returned to mfrs. Stomach offal present¹²⁹ ¼ ton removed from sale. Stomach offal present¹³⁰ 2½ tons removed from sale and shipped to

Jacksonville, Ill. Stomach offal present.

¹³¹ 5 tons removed from sale and returned to

mfrs. Stomach offal present

¹³² Not offered for sale¹³³ 1 13/20 tons removed from sale. Stomach offal

present

¹³⁴ 1 17/20 tons removed from sale. Stomach offal

present

¹³⁵ 2½ tons removed from sale. Stomach offal

present

¹³⁶ 1 9/20 tons returned to mfrs. Stomach offal

present

¹³⁷ 300 lbs. removed from sale. Stomach offal,

appreciable amount sand present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Inter-State Rendering Company, Kentland, Ind. | | | | | | | | |
| *Tankage ----- | 7778 | | Manufacturers ----- | 8.2 | --- | 12.5 | --- | 48.2 |
| Joslin-Schmidt Company, Cincinnati, Ohio | | | | | | | | |
| "Abattoir Brand" Digester Tankage----- | 6376 | 5394 | Osgood Grain Co., Osgood----- | 7.5 | 8.0 | 8.6 | 60.0 | 59.4 |
| "Abattoir Brand" Digester Tankage ¹³⁸ ----- | 6376 | 6045 | Hartman & Dotterer, Bluffton----- | 13.7 | 8.0 | 8.2 | 60.0 | 58.9 |
| "Abattoir Brand" Digester Tankage ¹³⁹ ----- | 6376 | 6133 | John P. Frazee, Rushville----- | 9.2 | 8.0 | 8.3 | 60.0 | 61.1 |
| "Abattoir Brand" Digester Tankage----- | 6376 | 6185 | Crabbs Reynolds Taylor Co., Lafayette ----- | 4.7 | 8.0 | 9.2 | 60.0 | 61.4 |
| "Abattoir Brand" Digester Tankage----- | 6376 | 6320 | Union Grain & Seed Co., Anderson ----- | 7.1 | 8.0 | 7.7 | 60.0 | 62.0 |
| "Abattoir Brand" Digester Tankage ¹³⁹ ----- | 6376 | 6860 | Hartman & Dotterer, Bluffton----- | 8.3 | 8.0 | 8.2 | 60.0 | 58.2 |
| "Abattoir Brand" Digester Tankage ¹³⁹ ----- | 6376 | 7068 | Osgood Grain Co., Osgood----- | 9.2 | 8.0 | 5.7 | 60.0 | 60.1 |
| Abattoir Brand—Digester Tankage----- | 8615 | 7439 | Hartman & Dotterer, Bluffton----- | 10.3 | 1.0 | 7.2 | 60.0 | 60.8 |
| Abattoir Brand—Digester Tankage ¹³⁹ ----- | 8615 | 7574 | Union Grain & Feed Co., Anderson ----- | 8.6 | 1.0 | 5.7 | 60.0 | 60.8 |
| Abattoir Brand—Digester Tankage ¹⁴⁰ ----- | 8615 | 7686 | McCoy & Garten, Indianapolis----- | 8.5 | 1.0 | 8.2 | 60.0 | 59.0 |
| Abattoir Brand—Digester Tankage ¹⁴⁰ ----- | 8615 | 7687 | McCoy & Garten, Indianapolis----- | 10.6 | 1.0 | 6.6 | 60.0 | 60.5 |
| Abattoir Brand—Digester Tankage----- | 8615 | 7929 | New Castle Elevator Co., New Castle ----- | 10.6 | 1.0 | 7.5 | 60.0 | 60.1 |
| Abattoir Brand—Digester Tankage----- | 8615 | 7940 | C. W. Caldwell, Bentonville----- | 10.6 | 1.0 | 4.8 | 60.0 | 60.9 |
| Abattoir Brand—Digester Tankage----- | 8615 | 7941 | E. C. Caldwell, Connersville----- | 12.6 | 1.0 | 5.2 | 60.0 | 61.9 |
| Abattoir Brand—Digester Tankage----- | 8615 | 7967 | Warren Elevator Co., Warren----- | 10.4 | 1.0 | 7.1 | 60.0 | 59.7 |
| Kalberer, Wm., Lafayette, Ind. | | | | | | | | |
| The Tippecanoe Hog Grower ----- | 8050 | 6144 | Manufacturer ----- | 8.2 | 10.0 | 13.0 | 50.0 | 50.5 |
| Kendallville Fertilizer Company, Kendallville, Ind. | | | | | | | | |
| "Feeding Tankage" ----- | 6488 | 7509 | Manufacturers ----- | 8.9 | 10.0 | 9.3 | 44.0 | 60.7 |
| Kingan & Company, Ltd., Indianapolis, Ind. | | | | | | | | |
| Kingan's Digester Tankage ----- | 8574 | 6997 | Crabbs Reynolds Taylor Co., Lafayette ----- | 8.4 | 6.0 | 11.7 | 60.0 | 66.7 |
| Kingan's Digester Tankage ----- | 8574 | 7023 | C. V. Graft, Winchester----- | 8.0 | 6.0 | 12.9 | 60.0 | 65.4 |
| Kingan's Digester Tankage ----- | 8574 | 7086 | C. G. Hunger, Madison----- | 10.1 | 6.0 | 11.3 | 60.0 | 66.6 |
| Kingan's Digester Tankage ¹⁴¹ ----- | 8574 | 7453 | Crabbs Reynolds Taylor Co., Lafayette ----- | 9.6 | 6.0 | 8.0 | 60.0 | 54.4 |
| Kingan's Digester Tankage ¹⁴² ----- | 8574 | 7633 | Bloomingtondale Mill Co., Bloomingtondale ----- | 10.7 | 6.0 | 8.9 | 60.0 | 55.1 |
| Kingan's Digester Tankage ¹⁴³ ----- | 8574 | 7681 | Hardin Grain Co., Fortville----- | 8.4 | 6.0 | 8.5 | 60.0 | 57.2 |
| Kuhner Packing Company, Muncie, Ind. | | | | | | | | |
| Kuhner's Tankage ----- | 6406 | 5917 | Manufacturers ----- | 13.8 | 9.0 | 6.2 | 30.0 | 34.0 |
| Kuhner's Tankage ¹⁴⁴ ----- | 6406 | 6143 | Manufacturers ----- | 5.3 | 9.0 | 9.2 | 30.0 | 33.7 |
| Kuhner's Tankage ----- | 8464 | 7090 | Manufacturers ----- | 4.9 | 5.0 | 5.3 | 30.0 | 34.9 |
| Maher Cold Storage, J. F., Richmond, Ind. | | | | | | | | |
| Feeding Tankage ¹⁴⁴ ----- | 8552 | 7916 | Manufacturers ----- | 7.7 | 5.0 | 18.5 | 28.0 | 25.5 |
| Manns' Fertilizer Works, North Manchester, Ind. | | | | | | | | |
| Mann's Feeding Tankage ----- | 7032 | 7161 | J. W. Strauss & Son, North Manchester ----- | 7.1 | 15.0 | 16.2 | 45.0 | 47.6 |
| Meier Packing Company, Indianapolis, Ind. | | | | | | | | |
| Feeding Tankage ----- | 8075 | 6009 | Amo Mill & Elevator Co., Bargersville ----- | 6.8 | 5.0 | 21.8 | 28.0 | 31.8 |
| Feeding Tankage ----- | 8075 | 8198 | Manufacturers ----- | 9.1 | 5.0 | 21.3 | 28.0 | 32.6 |
| Mitchell & Mitchell, Martinsville, R. R. 9, Ind. | | | | | | | | |
| +Feeding Tankage ¹⁴⁵ ----- | 8849 | 7677 | Manufacturers ----- | 8.9 | 7.0 | 16.0 | 30.0 | 40.8 |

* Not tagged

† Before registration

¹³⁸ Refund. See page 20. Stomach offal present¹³⁹ Stomach offal present¹⁴⁰ Stomach offal, approx. 1.6% sand present¹⁴¹ 17½ tons removed from sale. Relabeled with
No. 8886¹⁴² 1½ tons removed from sale¹⁴³ 700 lbs. returned to mfrs.¹⁴⁴ Stomach offal present¹⁴⁵ Large amount sand present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|------------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection ID | | | Guar- anteed | Found | Guar- anteed | Found |
| Montpelier Fertilizer Company, Huntington, Ind. Farmers Commercial Feeding Tank- age ¹⁴⁴ ----- | 5766 | 7958 | Montpelier Fertilizer Co., Montpelier ----- | 4.7 | 24.0 | 15.5 | 49.0 | 40.5 |
| Morris & Company, Chicago, Ill. Big Brand 60% Digester Tankage ----- | 4224 | 5346 | Nixon & Van Deventer, Attica ----- | 6.5 | 8.0 | 10.7 | 60.0 | 60.5 |
| Big Brand 60% Digester Tankage ----- | 4224 | 5352 | Hurst & Co., Indianapolis ----- | 7.9 | 8.0 | 9.9 | 60.0 | 62.3 |
| Big Brand 60% Digester Tankage ----- | 4224 | 7479 | Hamlet Grain Co., Hamlet ----- | 7.1 | 8.0 | 7.2 | 60.0 | 58.4 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 5694 | W. C. Hall Milling Co., Brazil ----- | 7.2 | 6.0 | 7.6 | 60.0 | 63.0 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 5861 | Crabbs Reynolds Taylor Co., Lafayette ----- | 6.2 | 6.0 | 9.7 | 60.0 | 60.2 |
| Big Sixty Meat Meal Digester Tank- age ¹⁴⁶ ----- | 8155 | 6915 | I. B. Clyne, Crawfordsville ----- | 8.0 | 6.0 | 8.1 | 60.0 | 56.6 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 7318 | Hurst & Co., Indianapolis ----- | 6.2 | 6.0 | 7.9 | 60.0 | 60.8 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 7449 | V. H. Bullett & Sons, Corydon ----- | 5.8 | 6.0 | 8.0 | 60.0 | 62.6 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 7483 | B. I. Holser & Co., Walkerton ----- | 8.3 | 6.0 | 7.7 | 60.0 | 60.8 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 7486 | Crabbs Reynolds Taylor Co., Lafayette ----- | 6.4 | 6.0 | 9.2 | 60.0 | 61.1 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 7689 | Hurst & Co., Indianapolis ----- | 5.2 | 6.0 | 9.3 | 60.0 | 60.1 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 7712 | I. B. Clyne, Crawfordsville ----- | 7.3 | 6.0 | 8.3 | 60.0 | 60.4 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 7802 | Morrison & DePrez Drug Co., Shelbyville ----- | 5.9 | 6.0 | 8.7 | 60.0 | 61.9 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 8022 | Hurst & Co., Indianapolis ----- | 7.0 | 6.0 | 9.0 | 60.0 | 60.5 |
| Big Sixty Meat Meal Digester Tankage ----- | 8155 | 8331 | V. T. Reid, Salem ----- | 6.2 | 6.0 | 8.5 | 60.0 | 60.5 |
| McCoy & Garten, Indianapolis, Ind. McCoys Choice Hog Digester Tank- age ¹⁴⁷ ----- | 5223 | 5443 | Letts Grain & Lumber Co., Letts Corner ----- | 11.8 | --- | 3.3 | 60.0 | 59.5 |
| McCoys Choice Hog Digester Tankage ----- | 5223 | 6079 | Manufacturers ----- | 7.1 | --- | 5.8 | 60.0 | 60.0 |
| McCoys Choice Hog Digester Tankage ----- | 5223 | 6472 | Manufacturers ----- | 8.4 | --- | 2.8 | 60.0 | 60.6 |
| McCoys Choice Hog Digester Tankage ----- | 5223 | 6488 | Manufacturers ----- | 7.6 | --- | 3.6 | 60.0 | 58.4 |
| McCoys Choice Hog Digester Tankage ----- | 5223 | 6825 | D. B. Zimmerman & Son, Cicero ----- | 7.8 | --- | 3.1 | 60.0 | 61.1 |
| McCoys Choice Hog Digester Tankage ----- | 5223 | 7357 | Manufacturers ----- | 7.8 | --- | 4.2 | 60.0 | 62.9 |
| McCoys Choice Hog Digester Tankage ----- | 5223 | 7683 | Manufacturers ----- | 8.1 | --- | 3.7 | 60.0 | 59.2 |
| McCoys Choice Hog Digester Tank- age ¹⁴⁸ ----- | 5223 | 7684 | Manufacturers ----- | 8.0 | --- | 4.3 | 60.0 | 60.4 |
| McCoys Choice Hog Digester Tankage ----- | 5223 | 7962 | Ossian Roller Mills, Ossian ----- | 8.6 | --- | 3.4 | 60.0 | 59.5 |
| McKenzie & Company, J. H., Brazil, R. R. 8, Ind. Tankage ----- | 8238 | 5695 | Manufacturers ----- | 6.6 | 8.0 | 13.1 | 55.0 | 60.5 |
| New Castle Tankage Company, New Castle, Ind. †Feeding Tankage ----- | 8965 | 8356 | Manufacturers ----- | 9.4 | 10.0 | 19.5 | 40.0 | 56.9 |
| Newton County Reduction Plant, Kentland, Ind. †Pendergrass Hog Tankage ----- | 8554 | 6193 | Manufacturers ----- | 4.1 | 8.0 | 21.6 | 38.0 | 39.7 |
| Pearl Packing House, The, Madison, Ind. The Pearl Brand ----- | 5015 | 5438 | Manufacturers ----- | 8.1 | 5.0 | 8.7 | 37.0 | 33.9 |
| The Pearl Brand ----- | 5015 | 5760 | Manufacturers ----- | 13.9 | 5.0 | 10.6 | 37.0 | 42.8 |
| The Pearl Brand ¹⁴⁹ ----- | 5015 | 7105 | Manufacturers ----- | 7.8 | 5.0 | 11.5 | 37.0 | 38.2 |
| The Pearl Brand ----- | 5015 | 8153 | Manufacturers ----- | 10.9 | 5.0 | 8.1 | 37.0 | 41.8 |
| Rauh & Sons Animal Feed Company, E., Indianapolis, Ind. Rauh's Digester Tankage for Hogs ¹⁴⁹ ----- | 7308 | 5996 | Wm. F. Pruesner, Freelandville ----- | 10.7 | --- | 8.5 | 60.0 | 58.9 |
| Rauh's Digester Tankage for Hogs ----- | 7308 | 6010 | Amo Mill & Elevator Co., Bargersville ----- | 12.6 | --- | 4.9 | 60.0 | 59.8 |
| Roby Bros., Winchester, R. R. 4, Ind. Roby Brothers Feeding Tankage ¹⁴⁴ ----- | 7552 | 7015 | Manufacturers ----- | 6.7 | 17.0 | 24.8 | 40.0 | 45.4 |
| Routh & Company, W. C., Logansport, Ind. Routh's Best Feeding Tankage ----- | 3375 | 5369 | Manufacturers ----- | 4.1 | --- | 4.0 | 60.0 | 73.0 |

† Before registration

¹⁴⁴ Stomach offal present¹⁴⁶ 4 1/10 tons returned to mfrs.¹⁴⁷ Stomach offal present¹⁴⁸ Stomach offal, approx. 1.6% sand and appre-
ciable amount glass present¹⁴⁹ Stomach offal present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Schmadel Packing & Ice Company, Evansville, Ind. | | | | | | | | |
| *Feeding Tankage | --- | 8163 | Manufacturers | 12.8 | --- | 6.2 | --- | 40.4 |
| Sears, Roebuck & Company, Chicago, Ill. | | | | | | | | |
| *Blue Bag Brand Digester Tankage | --- | 5586 | T. G. Carsell, Bloomington | 6.6 | --- | 7.3 | --- | 61.9 |
| Stadler Rendering & Fertilizer Company, The J. L. & H., Cleveland, Ohio | | | | | | | | |
| Feeding Tankage | --- | 8173 | 6018 Union Hardware Co., Lebanon | 11.2 | 10.0 | 8.5 | 40.0 | 38.6 |
| Stolle & Sons, Anton, Richmond, Ind. | | | | | | | | |
| Stolle's Feeding Tankage | 7586 | 6236 | Manufacturers | 4.2 | 6.0 | 11.3 | 34.0 | 34.0 |
| Stolle's Feeding Tankage ¹⁵⁰ | 7586 | 7915 | Manufacturers | 8.9 | 6.0 | 10.5 | 34.0 | 31.6 |
| Sullivan Reduction Company, Farmersburg, Ind. | | | | | | | | |
| †Feeding Tankage | 8282 | 5585 | Manufacturers | 11.2 | 2.0 | 15.5 | 35.0 | 49.8 |
| Feeding Tankage | 8282 | 7208 | Manufacturers | 6.5 | 2.0 | 20.2 | 35.0 | 46.0 |
| Swift & Company, Chicago, Ill. | | | | | | | | |
| Swift's Digester Tankage ¹⁵¹ | 7030 | 5378 | Vandalia Elevator Co., Colfax | 7.0 | 6.0 | 8.0 | 60.0 | 57.8 |
| Swift's Digester Tankage | 7030 | 5397 | Walton Elevator Co., Walton | 7.2 | 6.0 | 7.6 | 60.0 | 60.8 |
| Swift's Digester Tankage ¹⁵² | 7030 | 5510 | Chalmers Grain Co., Chalmers | 5.7 | 6.0 | 7.9 | 60.0 | 58.4 |
| Swift's Digester Tankage | 7030 | 5539 | C. E. Bash & Co., Huntington | 7.0 | 6.0 | 6.5 | 60.0 | 60.5 |
| Swift's Digester Tankage | 7030 | 5558 | Farmers Union Elevator Co., Carlisle | 7.6 | 6.0 | 6.0 | 60.0 | 61.4 |
| Swift's Digester Tankage | 7030 | 5625 | John Dunn, Wolecott | 7.3 | 6.0 | 8.2 | 60.0 | 60.9 |
| Swift's Digester Tankage | 7030 | 6042 | Studebaker Grain & Seed Co., Bluffton | 10.6 | 6.0 | 5.7 | 60.0 | 53.0 |
| Swift's Digester Tankage | 7030 | 6100 | Joseph Mineh, Chalmers | 6.0 | 6.0 | 8.5 | 60.0 | 60.9 |
| *Swift's Digester Tankage | --- | 6168 | O. B. Valentine, Claypool | 7.3 | --- | 8.8 | --- | 60.8 |
| Swift's Digester Tankage | 7030 | 6296 | C. F. Catron, Westville | 6.3 | 6.0 | 9.3 | 60.0 | 60.1 |
| Swift's Digester Tankage | 7030 | 6342 | Otto Lefforge, Rossville | 7.2 | 6.0 | 7.3 | 60.0 | 61.6 |
| Swift's Digester Tankage | 7030 | 6742 | McCoy Bros., Liberty | 6.3 | 6.0 | 10.3 | 60.0 | 59.5 |
| Swift's Digester Tankage | 7030 | 7148 | O. Gandy & Co., South Whitley | 9.3 | 6.0 | 5.9 | 60.0 | 61.2 |
| Swift's Digester Tankage | 7030 | 7280 | R. E. Findley, Arcadia | 9.5 | 6.0 | 5.2 | 60.0 | 60.5 |
| Swift's Digester Tankage | 7030 | 7394 | J. M. Wagner, Roann | 10.0 | 6.0 | 5.1 | 60.0 | 64.0 |
| Swift's Digester Tankage ¹⁵³ | 7030 | 7413 | M. S. Smith, Goldsmith | 8.2 | 6.0 | 9.3 | 60.0 | 57.3 |
| Swift's Digester Tankage | 7030 | 7421 | W. J. Lawson, Chase | 6.4 | 6.0 | 8.3 | 60.0 | 60.8 |
| Swift's Digester Tankage | 7030 | 7443 | Harting & Co., Elwood | 6.5 | 6.0 | 8.3 | 60.0 | 60.1 |
| Swift's Digester Tankage | 7030 | 7613 | Busenbark Elevator, Waveland | 8.2 | 6.0 | 8.6 | 60.0 | 58.6 |
| Swift's Digester Tankage | 7030 | 7680 | Pendleton Feed & Fuel Co., Pendleton | 6.7 | 6.0 | 6.0 | 60.0 | 60.2 |
| Swift's Digester Tankage | 7030 | 7729 | Farmers Grain & Seed Co., Darlington | 8.1 | 6.0 | 3.8 | 60.0 | 64.8 |
| Swift's Digester Tankage | 7030 | 8005 | Daniel McDermutt, Elwood | 6.7 | 6.0 | 8.4 | 60.0 | 60.7 |
| Swift's Digester Tankage ¹⁵⁴ | 7030 | 8009 | Harting & Co., Elwood | 7.0 | 6.0 | 7.9 | 60.0 | 61.1 |
| Swift's Digester Tankage ¹⁵⁵ | 7030 | 8011 | H. H. Pinney, Wanatah | 5.2 | 6.0 | 6.9 | 60.0 | 67.5 |
| Swift's Digester Tankage | 7030 | 8159 | Kraus & Apfelbaum, Ft. Wayne | 5.8 | 6.0 | 6.8 | 60.0 | 63.2 |
| Swift's Digester Tankage | 7030 | 8197 | C. E. Bash & Co., Huntington | 5.4 | 6.0 | 6.7 | 60.0 | 63.3 |
| Swift's Digester Tankage | 7030 | 8295 | Montmorenei Elevator Co., Montmorenei | 6.5 | 6.0 | 8.5 | 60.0 | 59.2 |
| Swift's Digester Tankage | 7030 | 8298 | Wakarusa Milling Co., Wakarusa | 6.3 | 6.0 | 6.8 | 60.0 | 62.3 |
| †Swift's Digester Tankage | 7030 | 8337 | Huffstetter & Gray, Nabb | 9.2 | 6.0 | 7.1 | 60.0 | 60.2 |
| Swift's Digester Tankage | 7030 | 8373 | C. A. Mendenhall, Economy | 5.6 | 6.0 | 7.2 | 60.0 | 62.0 |
| Tanking & Fertilizing Company, The, Muncie, Ind. | | | | | | | | |
| Feeding Tankage | 5626 | 5919 | Manufacturers | 8.2 | 9.0 | 18.2 | 43.0 | 55.8 |
| Feeding Tankage ¹⁵⁶ | 5626 | 6313 | Manufacturers | 24.5 | 9.0 | 15.4 | 43.0 | 43.3 |
| Feeding Tankage | 5626 | 7892 | Caldwell Tanking Co., Muncie | 4.1 | 9.0 | 24.3 | 43.0 | 53.0 |
| Wabash Fertilizer Company, Wabash, Ind. | | | | | | | | |
| Meat & Bone Tankage | 7605 | 5558 | Manufacturers | 27.1 | 8.0 | 14.9 | 40.0 | 47.2 |

* Not tagged

† Before registration

‡ Not tagged. Labels furnished

¹⁵⁰ Stomach offal present¹⁵¹ 500 lbs. removed from sale¹⁵² 400 lbs. returned to mfrs.¹⁵³ Refund. See page 20¹⁵⁴ 3 1/2 tons returned to mfrs.¹⁵⁵ 1 1/2 tons returned to mfr.¹⁵⁶ Stomach offal present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Warsaw Fertilizer & Tanking Company, Warsaw, Ind. | | | | | | | | |
| Tankage ----- | 8066 | 6166 | Little Crow Milling Co., Warsaw ----- | 9.5 | 3.0 | 19.9 | 40.0 | 49.4 |
| Tankage ----- | 8066 | 7167 | Little Crow Milling Co., Warsaw ----- | 7.9 | 3.0 | 18.0 | 40.0 | 53.4 |
| Tankage ¹⁵⁷ ----- | 8066 | 8063 | Manufacturers ----- | 12.9 | 3.0 | 11.8 | 40.0 | 52.7 |
| Western Packing & Provision Company, Union Stock Yards, Chicago, Ill. | | | | | | | | |
| Western Digester Tankage ¹⁵⁸ ----- | 8549 | 7184 | J. L. Morgan, Lyons ----- | 9.0 | 6.0 | 8.9 | 60.0 | 62.1 |
| Whitley County Tankage Company, Columbia City, Ind. | | | | | | | | |
| †Feeding Tankage ----- | 8828 | 7592 | Manufacturers ----- | 10.2 | 8.0 | 17.1 | 40.0 | 46.8 |
| Worm & Company, Indianapolis, Ind. | | | | | | | | |
| Eureka Concentrated Hog Food ¹⁵⁸ ----- | 8202 | 6302 | M. A. Conroy, Jeffersonville.--- | 7.2 | 11.0 | 10.0 | 35.4 | 33.3 |
| Wuichet Fertilizer Company, The, Dayton, Ohio | | | | | | | | |
| Stock Tankage ¹⁵⁸ ----- | 4169 | 6582 | E. F. Johnson, Paoli ----- | 8.7 | 10.0 | 13.3 | 40.0 | 47.9 |
| 60% Tankage ¹⁵⁹ ----- | 8175 | 5897 | Pierce Elevator, Union City--- | 12.9 | 5.0 | 8.2 | 60.0 | 48.7 |
| DRIED SUGAR BEET PULP | | | | | | | | |
| Larowe Milling Company, The, Detroit, Mich. | | | | | | | | |
| Dried Beet Pulp ----- | 2709 | 5640 | Edw. F. Goeke Co., Evansville | 7.7 | 0.5 | 1.0 | 8.0 | 9.5 |
| Dried Beet Pulp ----- | 2709 | 8206 | W. H. Small & Co., Evansville- | 6.9 | 0.5 | 0.9 | 8.0 | 11.0 |
| COCONUT OIL MEAL | | | | | | | | |
| Proctor & Gamble Distributing Com- pany, Port Ivory, Staten Island, N. Y. | | | | | | | | |
| P. & G. Copra Oil Meal ----- | 8652 | 7617 | Lacy Feed Store, Noblesville--- | 9.3 | 6.0 | 6.4 | 20.0 | 22.0 |
| P. & G. Copra Oil Meal ----- | 8652 | 8172 | Maumee Valley Mills, New Haven ----- | 8.0 | 6.0 | 8.8 | 20.0 | 21.3 |
| CORN BRAN | | | | | | | | |
| Bloomfield Mill & Elevator Company, Bloomfield, Ind. | | | | | | | | |
| †Corn Bran ----- | 8654 | 7174 | Manufacturer ----- | 10.1 | 3.0 | 9.2 | 6.0 | 11.9 |
| Boonville Milling Company, Boonville, Ind. | | | | | | | | |
| Corn Bran ----- | 3037 | 5808 | Manufacturers ----- | 11.5 | 4.0 | 7.6 | 9.0 | 10.3 |
| Corn Bran ----- | 3030 | 6884 | Manufacturers ----- | 8.6 | 4.0 | 7.0 | 9.0 | 10.1 |
| Brizius Company, The Chas. W., Newburgh, Ind. | | | | | | | | |
| Eagle Corn Bran ----- | 7388 | 6796 | Chas. W. Brizius Co., Evansville | 9.1 | 4.0 | 4.1 | 8.3 | 9.5 |
| Eagle Corn Bran ----- | 7388 | 7886 | Manufacturers ----- | 9.1 | 4.0 | 6.7 | 8.3 | 10.5 |
| Browning Milling Company, W. A., Evansville, Ind. | | | | | | | | |
| Corn Bran ----- | 2163 | 6803 | Manufacturers ----- | 11.3 | 4.0 | 6.2 | 7.0 | 11.2 |
| Cable, O. L., Pekin, Ind. | | | | | | | | |
| Corn Bran ----- | 6129 | 6722 | Manufacturer ----- | 10.1 | 2.0 | 6.7 | 8.0 | 9.7 |
| Cable & Dunlevy, Henryville, Ind. | | | | | | | | |
| Corn Bran ----- | 1728 | 6025 | Manufacturers ----- | 11.9 | 4.0 | 5.0 | 7.0 | 8.9 |
| Cutsinger & Thompson, Shelbyville, Ind. | | | | | | | | |
| Corn Bran ----- | 8747 | 7801 | Manufacturers ----- | 9.4 | 2.5 | 4.7 | 6.0 | 7.6 |
| Hampton, W. D., Worthington, Ind. | | | | | | | | |
| Corn Bran ----- | 3573 | 7145 | Manufacturer ----- | 9.8 | 4.0 | 5.0 | 7.8 | 9.5 |

⁷ Before registration¹⁵⁶ Stomach offal present¹⁵⁷ Stomach offal and appreciable amount of
sand present¹⁵⁸ Stomach offal present¹⁵⁹ Refund. See page 20. Stomach offal present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Home Mill & Grain Company, Mt. Vernon, Ind. Corn Bran ----- | 2598 | 6896 | Manufacturers ----- | 8.9 | 5.0 | 8.5 | 8.0 | 11.7 |
| Kennedy Milling Company, The Geo. W., Shelbyville, Ind. Corn Bran ----- | 7791 | 6986 | Manufacturers ----- | 8.7 | 5.0 | 8.5 | 8.0 | 11.1 |
| Corn Bran ----- | 7791 | 7862 | Manufacturers ----- | 8.0 | 5.0 | 10.0 | 8.0 | 11.9 |
| Moore Milling Company, R. P., Princeton, Ind. Corn Bran ----- | 999 | 6717 | Manufacturers ----- | 9.4 | 5.0 | 7.2 | 8.0 | 9.5 |
| Richmond Corn Mills, Richmond, Ind. Corn Bran ----- | 1727 | 7953 | Richmond Roller Mills, Richmond ----- | 10.5 | 5.0 | 6.6 | 8.0 | 10.5 |
| Shine & Company, John H., New Albany, Ind. Corn Bran ----- | 6677 | 6271 | Manufacturers ----- | 9.4 | 5.0 | 1.9 | 8.0 | 8.0 |
| Sims Milling Company, Frankfort, Ind. Corn Bran ----- | 6926 | 7770 | Manufacturers ----- | 8.1 | 3.5 | 8.8 | 8.0 | 10.3 |
| Smith, D. R., Tipton, Ind. Corn Bran ----- | 1543 | 5562 | Manufacturer ----- | 11.1 | 5.0 | 10.5 | 8.0 | 11.7 |
| Stader, Frank E., Evansville, Ind. Corn Bran ----- | 6343 | 6838 | Manufacturer ----- | 10.5 | 5.0 | 9.0 | 8.0 | 10.7 |
| Valentine & Valentine, Franklin, Ind. Corn Bran ----- | 1999 | 6559 | Manufacturers ----- | 9.3 | 3.9 | 8.8 | 6.9 | 11.2 |
| Yaw Bros., Terre Haute, Ind. Corn Bran ----- | 6450 | 6659 | Manufacturers ----- | 9.9 | 4.8 | 6.3 | 8.0 | 9.6 |
| CORN FEED MEAL | | | | | | | | |
| Akin-Erskine Milling Company, Evansville, Ind. Corn Feed Meal ----- | 8572 | 6926 | Akin-Erskine Milling Co., Inglesfield ----- | 9.7 | 2.0 | 7.5 | 9.0 | 10.6 |
| Boonville Milling Company, Boonville, Ind. Corn Feed Meal ----- | 6851 | 6906 | Manufacturers ----- | 10.6 | 2.5 | 4.4 | 7.5 | 9.3 |
| Branch Grain & Seed Company, Martinsville, Ind. Corn Feed Meal ----- | 3888 | 6705 | Manufacturers ----- | 11.7 | 2.5 | 2.3 | 6.0 | 7.2 |
| Brizius Company, The Chas. W., Newburgh, Ind. Eagle Corn Feed Meal ----- | 6075 | 6797 | Chas. W. Brizius, Co., Evansville ----- | 9.8 | 2.7 | 4.3 | 6.3 | 9.5 |
| Browning Milling Company, W. A., Evansville, Ind. Corn Feed Meal ----- | 3537 | 6804 | Manufacturers ----- | 10.1 | 2.4 | 4.4 | 6.7 | 9.7 |
| Burge-Thomas Milling Company, Marion, Ind. Corn Feed Meal ----- | 5759 | 6334 | Manufacturers ----- | 11.7 | 2.5 | 2.7 | 7.5 | 8.1 |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. Corn Feed Meal ----- | 5310 | 6789 | Manufacturers ----- | 10.9 | 2.0 | 3.1 | 7.0 | 7.9 |
| Daniels & Pickering Company, Middletown, Ind. Corn Feed Meal ----- | 4331 | 6284 | J. M. Walker & Son, Middletown ----- | 11.4 | 2.5 | 2.9 | 7.0 | 7.5 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Delp Grain Company, E. E., Bourbon, Ind. | | | | | | | | |
| †Special Corn Feed Meal ----- | 8372 | 5878 | Manufacturers ----- | 10.4 | 6.0 | 4.8 | 11.0 | 10.5 |
| Special Corn Feed Meal ----- | 8372 | 7166 | Little Crow Milling Co., Bourbon ----- | 10.4 | 6.0 | 4.4 | 11.0 | 12.1 |
| Emison & Company, J. & S., Vincennes, Ind. | | | | | | | | |
| Feed Meal ----- | 4464 | 8388 | Manufacturers ----- | 7.4 | 3.0 | 6.0 | 8.0 | 9.7 |
| Fairplay Feed Mills, Linton, Ind. | | | | | | | | |
| Feed Meal ----- | 6503 | 7131 | Manufacturers ----- | 9.7 | 2.5 | 5.0 | 7.0 | 10.6 |
| Farmers Elevator Company, The, Jamestown, Ind. | | | | | | | | |
| †Corn Feed Meal ----- | 8867 | 7781 | Manufacturers ----- | 9.5 | 2.5 | 5.7 | 7.5 | 10.1 |
| Greenfield Milling Company, The, Greenfield, Ind. | | | | | | | | |
| Corn Feed Meal ----- | 7540 | 6556 | Manufacturers ----- | 10.7 | 2.5 | 3.7 | 7.0 | 8.4 |
| Habig Bros., Indianapolis, Ind. | | | | | | | | |
| Habigs Corn Feed Meal ----- | 7844 | 7643 | Manufacturers ----- | 9.6 | 1.8 | 3.0 | 8.0 | 8.8 |
| Hall Milling Company, W. C., Brazil, Ind. | | | | | | | | |
| Corn Feed Meal ----- | 5131 | 6664 | Manufacturers ----- | 12.6 | 3.0 | 2.6 | 7.0 | 7.8 |
| Indiana Elevator Company, Indianapolis, Ind. | | | | | | | | |
| Corn Feed Meal ----- | 7073 | 6542 | Manufacturers ----- | 10.8 | 2.7 | 2.5 | 7.5 | 8.6 |
| Corn Feed Meal ----- | 7073 | 7739 | Manufacturers ----- | 11.1 | 2.7 | 2.8 | 7.5 | 8.2 |
| Katterjohn, Q. F., Boonville, Ind. | | | | | | | | |
| Corn Feed Meal ----- | 6852 | 6903 | Manufacturer ----- | 10.4 | 2.5 | 5.5 | 7.5 | 8.8 |
| Lash Flour Mills, Fred B., Farmersburg, Ind. | | | | | | | | |
| Corn Feed Meal ----- | 7783 | 5618 | Manufacturers ----- | 12.4 | 2.5 | 4.5 | 7.5 | 9.0 |
| Corn Feed Meal ----- | 7783 | 7228 | Manufacturers ----- | 10.2 | 2.5 | 3.9 | 7.5 | 9.0 |
| Merchants Hay & Grain Company, Indianapolis, Ind. | | | | | | | | |
| Corn Feed Meal ----- | 8535 | 6137 | Uhl-Snider Milling Co., Connersville ----- | 12.1 | 2.4 | 2.4 | 8.0 | 8.0 |
| Morning Star Mills, Evansville, Ind. | | | | | | | | |
| Stader's Feed Meal ----- | 4008 | 6839 | Frank E. Stader, Evansville---- | 10.7 | 3.0 | 8.4 | 7.0 | 11.5 |
| Nading Grain Company, Wm., Greensburg, Ind. | | | | | | | | |
| †Corn Feed Meal ----- | 8863 | 7853 | Manufacturers ----- | 6.5 | 2.5 | 3.9 | 7.5 | 8.5 |
| Pendleton Feed & Fuel Company, Pendleton, Ind. | | | | | | | | |
| Corn Feed Meal ----- | 5146 | 6062 | Manufacturers ----- | 13.5 | 3.0 | 2.6 | 7.0 | 8.4 |
| Plainfield Milling Company, Plainfield, Ind. | | | | | | | | |
| Corn Feed Meal ----- | 7923 | 6679 | Manufacturers ----- | 10.6 | 2.0 | 2.8 | 5.0 | 7.4 |
| Schaefer, Karl H., Indianapolis, Ind. | | | | | | | | |
| Schaefer's Special Corn Feed Meal---- | 8119 | 6427 | Manufacturer ----- | 10.8 | 3.0 | 4.7 | 8.0 | 8.3 |
| Shine & Company, John H., New Albany, Ind. | | | | | | | | |
| Star Feed Meal ----- | 5937 | 6270 | Manufacturers ----- | 11.1 | 2.5 | 3.7 | 7.0 | 8.8 |
| Star Feed Meal ----- | 5907 | 8039 | Manufacturers ----- | 10.2 | 2.5 | 5.0 | 7.0 | 9.7 |

† Before registration

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Slick & Company, L. E., Bloomington, Ill. | | | | | | | | |
| Safety First Corn By-Product..... | 8382 | 6114 | Bennett Taylor, Taylor Station | 9.7 | 6.0 | 6.9 | 10.0 | 10.7 |
| Safety First Corn By-Product..... | 8382 | 6139 | Crabbs Reynolds Taylor Co., Lafayette | 8.0 | 6.0 | 7.8 | 10.0 | 11.4 |
| Safety First Corn By-Product..... | 8382 | 6142 | Crabbs Reynolds Taylor Co., Lafayette | 8.5 | 6.0 | 6.7 | 10.0 | 10.8 |
| Safety First Corn By-Product..... | 8382 | 6156 | Stiefel & Levy, Avilla | 9.6 | 6.0 | 6.2 | 10.0 | 11.0 |
| Safety First Corn By-Product..... | 8382 | 6188 | Stiefel & Levy, Albion | 10.3 | 6.0 | 6.4 | 10.0 | 10.7 |
| ††Safety First Corn By-Product..... | 8382 | 6220 | Crabbs Reynolds Taylor Co., Lafayette | 9.7 | 6.0 | 6.9 | 10.0 | 11.2 |
| Safety First Corn By-Product..... | 8382 | 6221 | Crabbs Reynolds Taylor Co., Lafayette | 9.6 | 6.0 | 7.4 | 10.0 | 11.4 |
| Safety First Corn By-Product..... | 8382 | 6222 | E. C. Allyn, Mulberry | 9.8 | 6.0 | 7.4 | 10.0 | 11.3 |
| Safety First Corn By-Product..... | 8382 | 6223 | Forest Miller, Mulberry | 10.3 | 6.0 | 6.8 | 10.0 | 10.9 |
| Safety First Corn By-Product..... | 8382 | 6343 | Otto Lefforge, Rossville | 8.5 | 6.0 | 6.5 | 10.0 | 10.7 |
| Safety First Corn By-Product..... | 8382 | 7731 | Crabbs Reynolds Taylor Co., Linden | 8.6 | 6.0 | 6.2 | 10.0 | 11.5 |
| Safety First Corn By-Product..... | 8382 | 7947 | Omer G. Whelan, Richmond | 8.8 | 6.0 | 7.2 | 10.0 | 11.5 |
| Stafford Grain Company, Hope, Ind. | | | | | | | | |
| †Corn Feed Meal | 8533 | 6210 | Manufacturers | 11.3 | 2.5 | 3.6 | 7.5 | 7.7 |
| Sullivan Mill & Elevator Company, Sullivan, Ind. | | | | | | | | |
| Corn Feed Meal | 7777 | 7207 | Manufacturers | 11.8 | 2.5 | 3.2 | 7.5 | 7.8 |
| Thornburg Milling Company, Martinsville, Ind. | | | | | | | | |
| †Corn Feed Meal | 8591 | 6706 | Manufacturers | 11.1 | 2.5 | 3.3 | 7.5 | 8.0 |
| Corn Feed Meal | 8591 | 7673 | Manufacturers | 10.0 | 2.5 | 3.9 | 7.5 | 8.9 |
| Whelan, Omer G., Richmond, Ind. | | | | | | | | |
| Corn Feed Meal | 7709 | 6242 | Manufacturer | 11.5 | 2.5 | 4.4 | 7.5 | 9.2 |
| CORN GERM MEAL | | | | | | | | |
| American Hominy Company, Indianapolis, Ind. | | | | | | | | |
| Homeoline Feed | 3929 | 5873 | Scottsburg Elevator, Scottsburg | 2.3 | 5.0 | 6.9 | 17.0 | 17.9 |
| Homeoline Feed | 3929 | 7039 | Joe Minch, Chalmers | 4.9 | 5.0 | 6.8 | 17.0 | 18.8 |
| Homeoline Feed | 3929 | 7454 | Bloomington Milling Co., Bloomington | 4.8 | 5.0 | 7.0 | 17.0 | 19.4 |
| ††Homeoline Feed | 3929 | 7939 | T. S. Nugen, Lewisville | 6.1 | 5.0 | 5.9 | 17.0 | 19.1 |
| American Milling Company, Peoria, Ill. | | | | | | | | |
| Amco Corn Germ Meal | 8520 | 6676 | Jordan & Baird, Kewanaw | 4.5 | 7.0 | 7.6 | 18.0 | 19.3 |
| Amco Corn Germ Meal | 8520 | 7162 | Acme Grain Co., North Manchester | 7.6 | 7.0 | 8.6 | 18.0 | 19.2 |
| Amco Corn Germ Meal | 8520 | 7342 | Union Hardware Co., Lebanon | 5.3 | 7.0 | 9.2 | 18.0 | 18.2 |
| Amco Corn Germ Meal | 8520 | 7500 | J. C. Barrett, South Bend | 6.1 | 7.0 | 11.3 | 18.0 | 18.3 |
| Amco Corn Germ Meal | 8520 | 7501 | J. C. Barrett, South Bend | 7.1 | 7.0 | 9.4 | 18.0 | 19.7 |
| Amco Corn Germ Meal | 8520 | 7502 | J. C. Barrett, South Bend | 7.3 | 7.0 | 11.6 | 18.0 | 19.3 |
| Amco Corn Germ Meal | 8520 | 7990 | J. Gienger & Co., Jeffersonville | 7.1 | 7.0 | 9.4 | 18.0 | 18.6 |
| Amco Corn Germ Meal | 8520 | 8112 | Anchor Milling Co., Rochester | 6.5 | 7.0 | 9.4 | 18.0 | 19.2 |
| ††Amco Corn Germ Meal | 8907 | 8272 | Farmers Mill & Elevator Co., Columbia City | 4.5 | 7.0 | 9.3 | 15.5 | 16.4 |
| *Corn Germ Meal | --- | 7535 | University of Notre Dame, Notre Dame | 5.5 | --- | 11.3 | --- | 20.2 |
| Atlas Feed & Milling Company, Peoria, Ill. | | | | | | | | |
| Atlas Corn Oil Meal | 8460 | 6609 | Canal Elevator Co., Peru | 6.6 | 7.0 | 14.7 | 18.0 | 18.6 |
| Chicago Heights Oil M'f'g. Company, Chicago, Ill. | | | | | | | | |
| "Heights" Corn Oilcake Meal | 7457 | 5706 | Sam Milligen, Jr., Waveland | 8.7 | 8.0 | 9.1 | 18.0 | 22.7 |
| "Heights" Corn Oilcake Meal | 7457 | 5933 | I. L. Carter & Son, Upland | 8.3 | 8.0 | 7.8 | 18.0 | 20.4 |
| "Heights" Corn Oilcake Meal | 7457 | 6150 | Batchelor & Barlow, Sharpville | 9.5 | 8.0 | 8.8 | 18.0 | 22.8 |
| "Heights" Corn Oilcake Meal | 7457 | 6990 | Reimann-McCammon Co., Letts | 9.4 | 8.0 | 8.0 | 18.0 | 24.0 |
| "Heights" Corn Oilcake Meal | 7457 | 7414 | Farmers Elevator Co., Kempton | 10.1 | 8.0 | 7.7 | 18.0 | 21.5 |

* Not tagged

† Before registration

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Chicago Heights Oil M'fg. Company, Chicago, Ill. | | | | | | | | |
| "Heights" Corn Oilcake Meal..... | 7457 | 7573 | Sims Milling Co., Frankfort.. | 8.0 | 8.0 | 7.7 | 18.0 | 20.9 |
| "Heights" Corn Oilcake Meal..... | 7457 | 7727 | Farmers Grain & Seed Co., Darlington | 7.0 | 8.0 | 8.7 | 18.0 | 22.3 |
| Heights Corn Oilcake Meal | 8885 | 8322 | Crandall Flouring Mill, Crandall | 10.4 | 8.0 | 7.6 | 18.0 | 21.6 |
| Clinton Sugar Refining Company, Clinton, Iowa | | | | | | | | |
| Clinton Corn Germ Meal | 6788 | 6970 | C. F. Johnson & Son, Paoli.... | 6.5 | 7.0 | 10.3 | 20.0 | 26.5 |
| Clinton Corn Germ Meal | 6788 | 7125 | J. W. McMillen & Son, Ft. Wayne | 6.3 | 7.0 | 7.9 | 20.0 | 21.8 |
| Clinton Corn Germ Meal | 6788 | 7185 | Etna Lumber & Milling Co., Etna Green | 8.1 | 7.0 | 8.4 | 20.0 | 23.5 |
| Clinton Corn Germ Meal | 6788 | 7387 | Pleasant Lake Elevator Co., Pleasant Lake | 7.8 | 7.0 | 7.9 | 20.0 | 21.3 |
| Corn Products Refining Company, New York, N. Y. | | | | | | | | |
| Diamond Hog Meal | 7478 | 5370 | Chas. W. McCormick & Son, Logansport | 7.3 | 7.0 | 7.4 | 18.0 | 22.9 |
| Diamond Hog Meal | 7478 | 6128 | Tuhey Canning Co., Muncie.... | 8.8 | 7.0 | 9.2 | 18.0 | 25.0 |
| Diamond Hog Meal | 7478 | 6000 | Morrow Grain Co., Wabash.... | 7.8 | 7.0 | 8.6 | 18.0 | 24.4 |
| Diamond Hog Meal | 7478 | 7523 | J. H. Williamson Co., Muncie.... | 8.3 | 7.0 | 8.6 | 18.0 | 23.2 |
| Diamond Hog Meal | 7478 | 7814 | Edw. F. Goetze Co., Evansville.... | 9.3 | 7.0 | 8.4 | 18.0 | 24.8 |
| Argo Corn Oil Cake Meal | 7720 | 6338 | W. W. Pearson, Upland..... | 9.2 | 7.0 | 6.7 | 18.0 | 22.0 |
| Argo Corn Oil Cake Meal | 7720 | 7052 | C. J. Dils, Aurora | 10.2 | 7.0 | 7.2 | 18.0 | 25.1 |
| †Argo Corn Oil Cake Meal | 7720 | 7070 | John S. Graves, Carmel..... | 9.3 | 7.0 | 10.1 | 18.0 | 25.1 |
| Argo Corn Oil Cake Meal | 7720 | 7293 | Middlebury Mill Co., Middlebury | 8.0 | 7.0 | 8.2 | 18.0 | 25.7 |
| Argo Corn Oil Cake Meal ¹⁰⁰ | 7720 | 7596 | C. E. Bash & Co., Huntington.. | 7.9 | 7.0 | 7.8 | 18.0 | 25.8 |
| Dewey Bros. Company, The, Blanchester, Ohio | | | | | | | | |
| Corn Germ Oil Meal | 8662 | 7292 | Wolf & Bevington, Shipshewana | 8.8 | 6.0 | 9.0 | 20.0 | 22.3 |
| Hubinger Bros. Company, J. C., Keokuk, Iowa | | | | | | | | |
| Corn Germ Oil Meal | 8921 | 8336 | New Albany Milling Co., New Albany | 4.2 | 9.0 | 11.3 | 22.0 | 24.9 |
| Hurst & Company, Indianapolis, Ind. | | | | | | | | |
| Corn Oil Cake Meal | 8528 | 6239 | Omer G. Whelan, Richmond.... | 7.9 | 7.0 | 11.0 | 18.0 | 24.2 |
| Corn Oil Cake Meal | 8528 | 6378 | Ed. M. Murphy, Carmel..... | 8.7 | 7.0 | 10.7 | 18.0 | 24.5 |
| ††Corn Oil Cake Meal | 8528 | 7278 | R. E. Findley, Arcadia..... | 7.5 | 7.0 | 10.0 | 18.0 | 24.5 |
| ††Corn Oil Cake Meal | 8528 | 7279 | R. E. Findley, Arcadia..... | 8.7 | 7.0 | 11.0 | 18.0 | 23.3 |
| McCoy & Garten, Indianapolis, Ind. | | | | | | | | |
| Yellow Corn Germ Meal | 6429 | 6369 | Banister Grain Co., Treaty.... | 8.6 | 8.0 | 9.5 | 18.0 | 21.6 |
| White Corn Germ Meal | 7220 | 5579 | Klondike Milling Co., Danville.... | 2.3 | 6.0 | 7.3 | 19.0 | 19.7 |
| White Corn Germ Meal | 7220 | 6041 | Hubert French, Linn Grove.... | 2.7 | 6.0 | 6.7 | 19.0 | 20.4 |
| White Corn Germ Meal | 7220 | 6151 | James H. Harper, Sharpsville.... | 3.2 | 6.0 | 6.1 | 19.0 | 20.0 |
| White Corn Germ Meal | 7220 | 6305 | Crescent Milling Co., Crothersville | 3.7 | 6.0 | 5.8 | 19.0 | 19.0 |
| Piel Bros. Starch Company, Indianapolis, Ind. | | | | | | | | |
| ††P Bro. Corn Oil Cake | 7910 | 6203 | John S. Chandler, Greencastle.. | 9.6 | 10.0 | 11.0 | 15.0 | 19.5 |
| Pincoffs Company, Maurice, Chicago, Ill. | | | | | | | | |
| Pinco Brand Yellow Corn Germ Meal.. | 6729 | 5773 | New Albany Milling Co., New Albany | 7.8 | 8.0 | 10.1 | 20.0 | 24.8 |
| Pinco Brand Yellow Corn Germ Meal.. | 6729 | 6189 | Stiefel & Levy, Albion..... | 8.0 | 8.0 | 10.8 | 20.0 | 22.0 |
| Pinco Brand Yellow Corn Germ Meal.. | 6729 | 6301 | Crescent Milling Co., Crothersville | 8.6 | 8.0 | 7.6 | 20.0 | 24.7 |
| Pinco Brand Yellow Corn Germ Meal.. | 6729 | 6584 | L. C. Ralston, Orleans..... | 9.6 | 8.0 | 8.9 | 20.0 | 21.4 |
| Pinco Brand Yellow Corn Germ Meal.. | 6729 | 8251 | Home Grain Co., Berlein..... | 4.6 | 8.0 | 11.3 | 20.0 | 22.5 |
| Pinco Brand Yellow Corn Germ Meal.. | 6729 | 8254 | Home Grain Co., Berlein..... | 4.3 | 8.0 | 11.8 | 20.0 | 23.6 |

†† Not tagged. Labels furnished

¹⁰⁰ 4 tons withdrawn from sale. Corn gluten feed
present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Semans Edible Oils Company, Indianapolis, Ind. | | | | | | | | |
| Germena Germ Oil Meal ----- | 8216 | 5628 | Marshall & O'Hair, Greencastle | 4.5 | 6.0 | 8.6 | 19.0 | 18.8 |
| † Germena Germ Oil Meal ----- | 8216 | 5708 | Hargrave Bros., Russellville--- | 4.3 | 6.0 | 7.1 | 19.0 | 18.8 |
| Germena Germ Oil Meal ----- | 8216 | 5738 | Suckow Co., Franklin----- | 4.7 | 6.0 | 7.3 | 19.0 | 17.7 |
| Germena Germ Oil Meal ----- | 8216 | 6055 | Ohas. Kelly & Son, Fairmount--- | 5.5 | 6.0 | 7.5 | 19.0 | 18.0 |
| Germena Germ Oil Meal ¹⁶¹ ----- | 8216 | 6569 | R. R. McDaniel, Danville----- | 5.5 | 6.0 | 9.2 | 19.0 | 17.7 |
| "Germena" Germ Oil Meal ----- | 8539 | 6566 | Suckow Co., Franklin----- | 5.4 | 6.0 | 10.3 | 18.0 | 19.7 |
| "Germena" Germ Oil Meal ¹⁶² ----- | 8539 | 7213 | Farmers Union Elevator Co., Carlisle----- | 6.3 | 6.0 | 10.0 | 18.0 | 23.6 |
| "Germena" Germ Oil Meal ----- | 8539 | 7368 | F. H. Burkhart, Tipton----- | 5.3 | 6.0 | 10.1 | 18.0 | 19.2 |
| "Germena" Germ Oil Meal ----- | 8539 | 7378 | Manufacturers----- | 4.1 | 6.0 | 7.8 | 18.0 | 19.2 |
| "Germena" Germ Oil Meal ----- | 8539 | 8016 | O. L. Cauble, Salem----- | 4.5 | 6.0 | 7.6 | 18.0 | 18.3 |
| "Germena" Germ Oil Meal ----- | 8539 | 8327 | Fisher & Fisher, Nabb----- | 4.8 | 6.0 | 7.4 | 18.0 | 17.3 |
| "Germena" Germ Oil Meal ----- | 8539 | 8353 | Suckow Co., Franklin----- | 3.8 | 6.0 | 10.6 | 18.0 | 17.0 |
| "Germena" Germ Oil Meal ----- | 8539 | 8354 | Joseph H. Mullendore, Franklin | 4.4 | 6.0 | 9.1 | 18.0 | 16.1 |
| Simpson, H. E., Indianapolis, Ind. | | | | | | | | |
| Simpson's Corn Oilcake Meal ----- | 8005 | 5993 | W. C. Hall Milling Co., Brazil--- | 5.5 | 9.0 | 9.5 | 21.0 | 21.6 |
| Simpson's Corn Oilcake Meal ----- | 8005 | 5852 | W. D. Hurn Milling Co., Corydon Junction----- | 5.2 | 9.0 | 9.2 | 21.0 | 22.0 |
| Simpson's Corn Oilcake Meal ----- | 8005 | 6061 | Baker & Hodges, Pendleton----- | 5.2 | 9.0 | 10.8 | 21.0 | 22.7 |
| Simpson's Corn Oilcake Meal ----- | 8005 | 7344 | Shirley & Jones, Lebanon----- | 6.5 | 9.0 | 9.1 | 21.0 | 24.4 |
| Union Starch & Refining Company, Edinburg, Ind. | | | | | | | | |
| Union Corn Germ Meal ----- | 2237 | 5391 | Chas. H. Reynolds, Osgood----- | 5.4 | 8.0 | 12.6 | 18.0 | 19.3 |
| Union Corn Germ Meal ----- | 2237 | 6376 | A. Smith & Co., Sheridan----- | 4.9 | 8.0 | 13.5 | 18.0 | 19.1 |
| Union Corn Germ Meal ----- | 2237 | 6671 | Erie Elevator, Rochester----- | 6.1 | 8.0 | 12.2 | 18.0 | 19.7 |
| Union Corn Germ Meal ----- | 2237 | 7737 | Farmers Grain & Seed Co., Darlington----- | 5.8 | 8.0 | 11.1 | 18.0 | 19.2 |
| CORN GERM MEAL AND CORN DISTILLERS DRIED GRAINS | | | | | | | | |
| Semans Edible Oils Company, Indianapolis, Ind. | | | | | | | | |
| Maizmeal ----- | 8240 | 5904 | V. T. Reid, Salem----- | 5.8 | 8.0 | 9.7 | 25.0 | 24.1 |
| CORN GLUTEN FEED | | | | | | | | |
| Chicago Heights Oil Mfg. Company, Chicago, Ill. | | | | | | | | |
| "Prize" Corn Glutenfeed ----- | 7266 | 8146 | John M. Sample, Madison----- | 7.0 | 1.0 | 1.9 | 23.0 | 22.7 |
| Clinton Sugar Refining Company, Clinton, Iowa | | | | | | | | |
| Clinton Corn Gluten Feed ----- | 5452 | 8034 | O. Gandy & Co., South Whitley | 7.3 | 3.0 | 3.0 | 23.0 | 26.4 |
| Continental Cereal Company, Peoria, Ill. | | | | | | | | |
| Continental Gluten Feed ----- | 6066 | 6047 | Berne Milling Co., Berne----- | 7.2 | 6.0 | 10.4 | 26.5 | 30.5 |
| † Continental Gluten Feed ----- | 6066 | 7091 | Berne Milling Co., Berne----- | 7.1 | 6.0 | 12.7 | 26.5 | 34.0 |
| Corn Products Refining Company, New York, N. Y. | | | | | | | | |
| Buffalo Corn Gluten Feed ----- | 5530 | 6352 | McMahan Bros., Valparaiso---- | 9.1 | 1.0 | 1.7 | 23.0 | 27.5 |
| Buffalo Corn Gluten Feed ----- | 5530 | 7331 | Wm. Steeb, Crown Point----- | 10.5 | 1.0 | 1.6 | 23.0 | 26.8 |
| Buffalo Corn Gluten Feed ----- | 5530 | 7384 | Kraus & Apfelbaum, Auburn--- | 11.9 | 1.0 | 1.4 | 23.0 | 28.2 |
| Buffalo Corn Gluten Feed ----- | 5530 | 7815 | Edw. F. Goeke Co., Evansville | 10.3 | 1.0 | 1.1 | 23.0 | 25.9 |
| Buffalo Corn Gluten Feed ¹⁶³ ----- | 5530 | 8181 | Huntertown Grain Co., Huntertown----- | 9.4 | 1.0 | 9.0 | 23.0 | 24.8 |
| Hubinger Bros. Company, J. C., Keokuk, Iowa | | | | | | | | |
| K K K Corn Gluten Feed ----- | 6638 | 5885 | O. L. Cauble, Pekin----- | 9.8 | 2.4 | 3.6 | 23.0 | 24.9 |
| Union Starch & Refining Company, Edinburg, Ind. | | | | | | | | |
| Union Gluten Feed ----- | 559 | 6373 | McCardle Grain Co., Terhune--- | 8.6 | 3.0 | 2.8 | 24.0 | 24.8 |
| Union Gluten Feed ----- | 559 | 6627 | Erie Elevator, Rochester----- | 7.0 | 3.0 | 3.2 | 24.0 | 23.5 |

† Not tagged. Labels furnished

¹⁶¹ Relabeled with No. 8539¹⁶² Wrong label attached. Relabeled with No. 8240¹⁶³ 16¼ tons removed from sale. Misbranded.

Relabeled No. 7478

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Union Starch & Refining Company, Edinburg, Ind. | | | | | | | | |
| Union Gluten Feed ----- | 559 | 6737 | Uhl-Snider Milling Co., Connersville ----- | 8.8 | 3.0 | 1.8 | 24.0 | 25.4 |
| Union Gluten Feed ----- | 559 | 7725 | Farmers Grain & Seed Co., Darlington ----- | 8.3 | 3.0 | 2.1 | 24.0 | 25.4 |
| Union Gluten Feed ----- | 559 | 7798 | Cutsinger & Thompson, Shelbyville ----- | 8.0 | 3.0 | 3.1 | 24.0 | 24.1 |
| Union Gluten Feed ----- | 559 | 8082 | Pickens & Brengle, Orleans.... | 7.5 | 3.0 | 2.4 | 24.0 | 25.4 |
| No Manufacturer | | | | | | | | |
| *Gluten Feed ----- | --- | 7409 | Lon & Oren Cook, Bargersville.. | 9.6 | --- | 7.1 | --- | 24.1 |
| CORN GLUTEN MEAL | | | | | | | | |
| Corn Products Refining Company, New York, N. Y. | | | | | | | | |
| Diamond Corn Gluten Meal ----- | 6979 | 6456 | Roper & Brown, Hobart..... | 8.2 | 1.0 | 0.6 | 40.0 | 45.5 |
| Diamond Corn Gluten Meal ----- | 6979 | 7362 | Wm. Steeb, Crown Point..... | 7.0 | 1.0 | 1.0 | 40.0 | 40.1 |
| Diamond Corn Gluten Meal ----- | 6979 | 7364 | J. Jay Baldwin, Crown Point.... | 10.1 | 1.0 | 0.6 | 40.0 | 43.5 |
| *Diamond Corn Gluten Meal ----- | --- | 7422 | Hurst & Co., Indianapolis..... | 8.3 | --- | 0.9 | --- | 41.6 |
| †Diamond Corn Gluten Meal ----- | 6979 | 8184 | Reed Bros. Coal & Feed Co., Ft. Wayne ----- | 7.4 | 1.0 | 0.8 | 40.0 | 45.0 |
| HOMINY FEED, MEAL OR CHOP | | | | | | | | |
| American Hominy Company, Indianapolis, Ind. | | | | | | | | |
| Homeo Hominy Feed ----- | 7614 | 5619 | Fred B. Lash Flour Mills, Farmersburg ----- | 8.6 | 6.0 | 7.3 | 10.0 | 10.6 |
| Homeo Hominy Feed ----- | 7614 | 5637 | Edw. F. Goeke Co., Evansville.. | 8.6 | 6.0 | 9.5 | 10.0 | 10.7 |
| *Homeo Hominy Feed ----- | --- | 6303 | W. E. Everhart, Austin..... | 8.7 | --- | 6.4 | --- | 10.2 |
| Homeo Hominy Feed ----- | 7614 | 6307 | John Gienger & Co., Jeffersonville ----- | 8.8 | 6.0 | 6.6 | 10.0 | 11.3 |
| Homeo Hominy Feed ----- | 7614 | 6682 | Plainfield Milling Co., Plainfield | 7.7 | 6.0 | 6.4 | 10.0 | 11.0 |
| Homeo Hominy Feed ----- | 7614 | 7075 | J. W. Linkhart & Son, North Vernon ----- | 10.4 | 6.0 | 6.4 | 10.0 | 10.9 |
| Homeo Hominy Feed ----- | 7614 | 7152 | C. M. Gushard, Laketon ----- | 8.2 | 6.0 | 8.3 | 10.0 | 11.3 |
| Homeo Hominy Feed ----- | 7614 | 7314 | J. W. Linkhart & Son, North Vernon ----- | 7.5 | 6.0 | 7.7 | 10.0 | 11.1 |
| ††Homeo Hominy Feed ----- | 7614 | 7564 | Cash Flour & Feed Store, South Bend ----- | 7.7 | 6.0 | 9.0 | 10.0 | 11.4 |
| ††Homeo Hominy Feed ----- | 7614 | 7651 | Habig Bros., Indianapolis..... | 9.0 | 6.0 | 5.9 | 10.0 | 10.6 |
| Homeo Hominy Feed ----- | 7614 | 7670 | F. W. Gilbert, Dana..... | 7.9 | 6.0 | 8.1 | 10.0 | 11.7 |
| Homeo Hominy Feed ----- | 7614 | 7780 | Lingeman-Adams & Co., Brownsburg ----- | 7.9 | 6.0 | 6.7 | 10.0 | 11.4 |
| Homeo Hominy Feed ----- | 7614 | 8352 | Joseph H. Mullendore, Franklin | 7.9 | 6.0 | 5.7 | 10.0 | 9.6 |
| Amo Mill & Elevator Company, Amo, Ind. | | | | | | | | |
| ††Amo Hominy Feed ----- | 5778 | 7410 | Amo Mill & Elevator Co., Bargersville ----- | 8.2 | 7.0 | 8.7 | 10.0 | 11.1 |
| Blair Milling Company, The, Atchison, Kans. | | | | | | | | |
| Blair's Hominy Feed ----- | 6154 | 8269 | Farmers Mill & Elevator Co., Columbia City, Ind. ----- | 8.8 | 6.5 | 8.1 | 9.0 | 10.9 |
| Deutsch & Sickert Company, Milwaukee, Wis. | | | | | | | | |
| Success Hominy Feed ¹⁶⁴ ----- | 6071 | 6213 | Charlestown Milling Co., Charlestown ----- | 10.0 | 6.0 | 10.1 | 9.0 | 11.3 |
| Eberts & Bro., North Vernon, Ind. | | | | | | | | |
| Eberts Hominy Feed ----- | 6366 | 5440 | C. W. Jessup, Madison..... | 8.2 | 7.0 | 7.9 | 10.0 | 10.5 |
| Eberts Hominy Feed ----- | 6366 | 6091 | Reimann-McCammon Co., Letts | 8.4 | 7.0 | 9.7 | 10.0 | 11.3 |
| Eberts Grain Company, The, Nabb, Ind. | | | | | | | | |
| Hominy Meal ----- | 4460 | 6214 | Charlestown Milling Co., Charlestown ----- | 9.0 | 7.5 | 8.9 | 10.0 | 11.1 |
| Elevator Milling Company, Springfield, Ill. | | | | | | | | |
| Hominy Feed ----- | 2514 | 7072 | W. P. Neel, Holton..... | 10.1 | 7.5 | 8.7 | 10.0 | 11.4 |

* Not tagged

†† Not tagged. Labels furnished

¹⁶⁴ 9½ tons removed from sale. Relabeled with
No. 8553. Made from yellow corn

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Emison & Company, J. & S., (Baltie Mills), Vincennes, Ind. | | | | | | | | |
| Hominy Feed ----- | 8046 | 5742 | Scarlett & Pope, West Baden.. | 4.5 | 7.0 | 9.6 | 8.0 | 11.2 |
| Hominy Feed ----- | 8046 | 8389 | Manufacturer ----- | 5.7 | 7.0 | 6.3 | 8.0 | 10.1 |
| Evans Milling Company, Indianapolis, Ind. | | | | | | | | |
| Hominy Feed ----- | 20 | 5439 | C. G. Hunger, Madison ----- | 8.7 | 7.5 | 8.2 | 10.0 | 11.1 |
| Hominy Feed ----- | 20 | 7335 | Otto Lefforge, Rossville ----- | 8.3 | 7.5 | 8.6 | 10.0 | 11.5 |
| Hominy Feed ----- | 20 | 8348 | New Castle Elevator Co., New Castle ----- | 7.5 | 7.5 | 7.8 | 10.0 | 10.0 |
| Ewing Mill Company, Brownstown, Ind. | | | | | | | | |
| Hominy Meal ----- | 296 | 8330 | John H. Shine & Co., New Albany ----- | 12.1 | 7.5 | 6.0 | 9.0 | 9.4 |
| Farmers Hominy Mill, Seymour, Ind. | | | | | | | | |
| Farmers Hominy Feed ----- | 8296 | 5871 | Cauble & Dunlevy, Henryville.. | 9.0 | 7.5 | 8.1 | 10.0 | 10.6 |
| Farmers Hominy Feed ----- | 8296 | 6787 | C. G. Clark & Son, Rushville.. | 6.8 | 7.5 | 9.0 | 10.0 | 11.2 |
| Fisher Bros., Evansville, Ind. | | | | | | | | |
| Diamond Hominy Feed ----- | 8737 | 7843 | Manufacturers ----- | 8.3 | 6.0 | 7.7 | 10.0 | 11.0 |
| Hall Milling Company, W. C., Brazil, Ind. | | | | | | | | |
| Hall's Hominy Feed ----- | 7482 | 5691 | Manufacturers ----- | 7.6 | 5.0 | 8.8 | 9.5 | 11.2 |
| Kidder & Company, F. L., Paris, Ill. | | | | | | | | |
| Peerless Hominy Feed ----- | 2449 | 5713 | Stiefel & Levy, Avilla ----- | 6.8 | 7.5 | 8.5 | 8.5 | 10.7 |
| Krause Milling Company, Chas. A., Milwaukee, Wis. | | | | | | | | |
| ††Badger Hominy Feed ----- | 5101 | 6046 | Hartman & Dotterer, Bluffton | 10.2 | 6.0 | 7.5 | 10.0 | 11.9 |
| Badger Hominy Feed ----- | 5101 | 6187 | Stiefel & Levy, Albion ----- | 8.0 | 6.0 | 7.3 | 10.0 | 12.2 |
| Badger Hominy Feed ¹⁶⁵ ----- | 5101 | 6694 | Jacob Portman, Columbia City | 7.9 | 6.0 | 8.1 | 10.0 | 11.4 |
| Badger Hominy Feed ----- | 5101 | 6699 | Chas. A. Krause Milling Co., Columbia City ----- | 8.1 | 6.0 | 7.4 | 10.0 | 12.0 |
| Badger Hominy Feed ----- | 5101 | 6700 | Chas. A. Krause Milling Co., Columbia City ----- | 11.1 | 6.0 | 8.5 | 10.0 | 12.3 |
| Badger Hominy Feed ----- | 5101 | 6701 | Columbia City Mill & Elevator Co., Columbia City ----- | 10.2 | 6.0 | 7.2 | 10.0 | 11.3 |
| Badger Hominy Feed ¹⁶⁶ ----- | 5101 | 7352 | McCoy & Garten, Indianapolis | 8.4 | 6.0 | 7.7 | 10.0 | 11.6 |
| Badger Hominy Feed ----- | 5101 | 8000 | H. L. Hagee, Peru ----- | 7.1 | 6.0 | 7.4 | 10.0 | 11.8 |
| Kuhn & Company, Paul, Terre Haute, Ind. | | | | | | | | |
| Hominy Feed ¹⁶⁷ ----- | 2735 | 6864 | Paul Kuhn & Co., Clay City---- | 9.1 | 7.7 | 8.1 | 10.0 | 11.8 |
| Louisville Cereal Mill Company, Louisville, Ky. | | | | | | | | |
| Hominy Meal ----- | 2020 | 5867 | T. A. Pass, Sellersburg----- | 7.1 | 7.0 | 7.8 | 9.0 | 10.6 |
| Mosher & Company, A. B., Columbia City, Ind. | | | | | | | | |
| ††Hominy Feed ----- | 8482 | 6163 | F. F. Mosher, Columbia City-- | 9.4 | 6.0 | 8.8 | 10.0 | 11.4 |
| National Feed Company, St. Louis, Mo. | | | | | | | | |
| "Hominy Feed" ----- | 3020 | 6165 | F. F. Mosher, Columbia City-- | 9.9 | 7.0 | 10.0 | 10.0 | 12.2 |
| "Hominy Feed" ----- | 3020 | 6640 | Prater-Mottier Co., Terre Haute | 8.8 | 7.0 | 8.9 | 10.0 | 11.3 |
| "Hominy Feed" ¹⁶⁸ ----- | 3020 | 6698 | S. F. Trembley Co., Columbia City ----- | 9.7 | 7.0 | 9.1 | 10.0 | 11.9 |
| "Hominy Feed" ¹⁶⁸ ----- | 3020 | 6725 | Aaron Turley, Orleans----- | 9.2 | 7.0 | 8.3 | 10.0 | 11.2 |
| "Hominy Feed" ----- | 3020 | 7582 | Melvin Pence, Columbia City-- | 8.9 | 7.0 | 8.5 | 10.0 | 11.5 |
| ††"Hominy Feed" ----- | 3020 | 7936 | Hawley Hall, Lewisville----- | 8.3 | 7.0 | 9.6 | 10.0 | 11.1 |
| "Hominy Feed" ----- | 3020 | 8071 | A. B. Mosher & Co., Columbia City ----- | 7.7 | 7.0 | 8.6 | 10.0 | 11.6 |
| Perin Bros., Cincinnati, Ohio | | | | | | | | |
| Hominy Feed ----- | 8721 | 7963 | C. W. Curtis, Aurora----- | 7.5 | 7.0 | 9.2 | 10.0 | 11.6 |

†† Not tagged. Labels furnished

¹⁶⁵ Small amount of yellow corn present¹⁶⁶ 40 tons removed from sale. Replaced on sale.

Corn germ meal and corn grits present

¹⁶⁷ Sample composed of corn grits, germ, and
bran from yellow corn. Relabeled No. 8614¹⁶⁸ Wrong labels attached. Relabeled with No.
8637

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Pfeffer Milling Company, Lebanon, Ill. Pfeffer Milling Co., Hominy Feed----- | 2617 | 5781 | John Gienger & Co., Jeffersonville ----- | 7.7 | 8.0 | 9.6 | 10.0 | 11.3 |
| Plymouth Milling Company, Lemars, Iowa **Pure Hominy Feed ¹⁶⁹ ----- | ---- | 7047 | P. W. Havens, Hartford City-- | 10.1 | --- | 8.9 | --- | 11.1 |
| Raidt Milling Company, F., Louisville, Ky. Hominy Meal ----- | 1920 | 5777 | L. Thorn & Sons, New Albany-- | 7.1 | 6.0 | 8.7 | 8.0 | 11.9 |
| Hominy Meal ----- | 1920 | 7433 | John Gienger & Co., Jeffersonville ----- | 6.2 | 6.0 | 9.2 | 8.0 | 11.3 |
| Stiefel & Levy, Fort Wayne, Ind. Hominy Feed ----- | 7866 | 6514 | Stiefel & Levy, Avilla----- | 9.1 | 6.5 | 9.4 | 9.0 | 11.4 |
| Suckow Company, Franklin, Ind. "Perfection" Hominy Feed ¹⁷⁰ ----- | 5945 | 6177 | Manufacturers ----- | 9.0 | 7.5 | 7.1 | 10.0 | 11.4 |
| Suffern-Hunt Mills, Decatur, Ill. ††Acme Hominy Feed ----- | 7479 | 5388 | Osgood Grain Co., Osgood---- | 9.0 | 7.0 | 8.6 | 10.0 | 11.4 |
| Acme Hominy Feed ----- | 7479 | 6618 | Anchor Milling Co., Rochester-- | 7.5 | 7.0 | 8.8 | 10.0 | 10.6 |
| No Manufacturer Hominy Feed ¹⁷¹ ----- | ---- | 7411 | Bert E. Barnet, Bargersville---- | 8.0 | --- | 8.8 | --- | 11.0 |
| Hominy Feed ¹⁷¹ ----- | ---- | 7779 | Fairland Grain Co., Fairland---- | 8.2 | --- | 8.3 | --- | 11.5 |
| VELVET BEAN FEED | | | | | | | | |
| Acme-Jones Company, Inc., Louisville, Ky. Big J Bean Meal ----- | 8448 | 6278 | James M. Lee & Co., New Albany ----- | 8.7 | 4.0 | 4.5 | 19.0 | 19.3 |
| Alabama Black Belt Company, Montgomery, Ala. Velvet Bean and Pod Feed Meal----- | 8568 | 6899 | Boonville Milling Co., Boonville | 8.1 | 4.0 | 4.4 | 18.5 | 19.1 |
| Joseph Company, Dan, Columbus, Ga. Velvet Bean Feed ----- | 8415 | 6172 | New Castle Elevator Co., New Castle ----- | 9.0 | 4.5 | 4.6 | 19.0 | 18.5 |
| Velvet Bean Feed ----- | 8415 | 6208 | Valentine & Valentine, Franklin | 8.5 | 4.5 | 5.0 | 19.0 | 20.0 |
| Velvet Bean Feed ----- | 8415 | 6976 | Wm. Nading Grain Co., Greensburg ----- | 9.7 | 4.5 | 4.5 | 19.0 | 18.4 |
| Diamond Brand Velvet Bean Feed----- | 8874 | 8131 | Lingeman, Adams & Co., Brownsburg ----- | 10.2 | 4.0 | 4.5 | 17.5 | 18.5 |
| Diamond Brand Velvet Bean Feed----- | 8874 | 8347 | Valentine & Valentine, Franklin | 9.0 | 4.0 | 4.2 | 17.5 | 17.7 |
| COTTONSEED FEED | | | | | | | | |
| Buckeye Cotton Oil Company, Cincinnati, Ohio Buco Cottonseed Feed ----- | 7965 | 7964 | P. A. Froh, Corunna----- | 7.0 | 3.5 | 6.8 | 20.0 | 39.0 |
| Buco Cottonseed Feed ----- | 7965 | 7966 | Carl Becker, Corunna----- | 7.0 | 3.5 | 7.1 | 20.0 | 39.2 |
| Buco Cottonseed Feed ----- | 7965 | 8050 | Kraus & Apfelbaum, Ft. Wayne | 7.3 | 3.5 | 6.8 | 20.0 | 36.9 |
| "Buckeye" Good Cottonseed Feed----- | 8184 | 5495 | Wm. Eesley & Co., West College Corner ----- | 6.9 | 5.0 | 6.5 | 36.0 | 33.5 |
| "Buckeye" Good Cottonseed Feed----- | 8184 | 5985 | Murdock Farms Co., Morocco-- | 7.4 | 5.0 | 5.7 | 36.0 | 36.7 |
| "Buckeye" Good Cottonseed Feed----- | 8184 | 7965 | Carl Becker, Corunna----- | 6.9 | 5.0 | 7.0 | 36.0 | 37.3 |
| "Buckeye" Good Cottonseed Feed----- | 8184 | 8380 | O. G. Whelan, Richmond----- | 5.6 | 5.0 | 6.6 | 36.0 | 37.5 |
| Imperial Cotto Sales Company, Chicago, Ill. Imperial Cotto Brand Cottonseed Feed ----- | 8094 | 6158 | Edw. F. Goeke & Co., Evansville ----- | 6.5 | 3.5 | 3.7 | 20.0 | 21.7 |
| ††Imperial Cotto Brand Cottonseed Feed ----- | 8094 | 6329 | M. Jungles, Fair Oaks ----- | 5.8 | 3.5 | 3.2 | 20.0 | 21.2 |
| ††Imperial Brand Cottonseed Feed ----- | 8446 | 5969 | G. H. Hillis, Fair Oaks----- | 7.9 | 4.5 | 6.6 | 35.0 | 35.0 |

** Not registered

†† Not tagged. Labels furnished

¹⁶⁹ 200 lbs. returned to mfrs.¹⁷⁰ 20 tons removed from sale. Relabeled with No. 8521. Sample consists of corn grits, germ meal and bran from yellow and white corn¹⁷¹ Not tagged. Manufacturer's name could not be ascertained

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Memphis Cotton Hull & Fiber Company, Ltd., Memphis, Tenn. | | | | | | | | |
| “Cyclone” Cotton Seed Feed | 8704 | 7970 | G. E. Eberhart & Son, Dale.... | 7.7 | 3.0 | 3.6 | 20.0 | 20.9 |
| “Cyclone” Cotton Seed Feed | 8704 | 8335 | V. T. Reid, Salem..... | 7.5 | 3.0 | 3.6 | 20.0 | 20.5 |
| Southern Seed Company, Louisville, Ky. Atlas Cotton Seed Feed | 8792 | 8053 | Edgar Colen, New Albany.... | 8.9 | 3.0 | 3.9 | 23.0 | 22.6 |
| Tennessee Fiber Company, Memphis, Tenn. | | | | | | | | |
| Creamo Brand Cottonseed Feed..... | 4952 | 5762 | Star Mill Co., Huntingburg.... | 8.0 | 4.0 | 3.9 | 20.0 | 20.2 |
| Creamo Brand Cottonseed Feed..... | 4952 | 5970 | Michael Jungles, Fair Oaks.... | 7.5 | 4.0 | 3.7 | 20.0 | 21.1 |
| Creamo Brand Cottonseed Feed..... | 4952 | 6082 | S. F. Trembly Co., Columbia City | 7.3 | 4.0 | 3.5 | 20.0 | 20.5 |
| Creamo Brand Cottonseed Feed..... | 4952 | 7707 | Geo. Niemeyer & Son, Dillsboro | 8.2 | 4.0 | 4.0 | 20.0 | 21.9 |
| Creamo Brand Cottonseed Feed..... | 8495 | 8044 | Chas H. Porter, Rensselaer.... | 8.2 | 3.5 | 3.7 | 20.0 | 22.2 |
| Union Seed & Fertilizer Company, West New York, N. J. | | | | | | | | |
| Columbia Cottonseed Feed | 8653 | 7840 | Fisher Bros., Evansville..... | 7.7 | 3.0 | 4.3 | 20.5 | 23.1 |
| Columbia Cottonseed Feed | 8653 | 8277 | J. Jay Baldwin, Crown Point.. | 8.5 | 3.0 | 4.5 | 20.5 | 22.4 |
| COTTONSEED MEAL | | | | | | | | |
| Bartlett Company, The J. E., Jackson, Mich. | | | | | | | | |
| ††Farmer Brand Straight Cotton Seed Meal | 8064 | 5486 | Richard Hagans, Greenfield.... | 5.8 | 5.0 | 6.6 | 36.0 | 37.0 |
| Farmer Brand Straight Cotton Seed Meal ¹⁷² | 8064 | 6068 | Hammel Milling Co., Fremont.. | 7.8 | 5.0 | 5.6 | 36.0 | 32.4 |
| ††Farmer Brand Straight Cotton Seed Meal | 8064 | 6515 | City Milling Co., Kendallville.. | 8.2 | 5.0 | 5.7 | 36.0 | 36.1 |
| Branch Company, T. O., Little Rock, Ark. | | | | | | | | |
| Holstein Brand Cotton Seed Meal and Screened Cotton Seed Cake..... | 8789 | 8275 | A. L. Cartwright, Crown Point | 7.2 | 6.0 | 6.7 | 36.0 | 39.7 |
| Hereford Brand Cotton Seed Meal and Screened Cotton Seed Cake..... | 8790 | 8321 | Edward Curtner, Union City... | 6.5 | 6.0 | 6.8 | 38.5 | 38.7 |
| Maklat Brand Cotton Seed Meal and Screened Cotton Seed Cake..... | 8791 | 8340 | C. C. Fisher, Union City..... | 6.9 | 6.0 | 7.1 | 41.0 | 38.4 |
| Brode & Company, F. W., Memphis, Tenn. | | | | | | | | |
| Owl Brand Cottonseed Meal ¹⁷³ | 4840 | 5422 | W. F. Van Natta, Fowler..... | 7.4 | 6.0 | 6.4 | 41.0 | 39.1 |
| Owl Brand Cottonseed Meal | 4840 | 5423 | J. K. Kirkpatrick, Fowler | 7.0 | 6.0 | 6.6 | 41.0 | 41.3 |
| Owl Brand Cottonseed Meal | 4840 | 5494 | W. E. Lowman, Mulberry | 6.8 | 6.0 | 6.7 | 41.0 | 41.4 |
| Owl Brand Cottonseed Meal | 4840 | 5574 | J. H. Wright & Harry Dickey, Columbus | 7.8 | 6.0 | 9.6 | 41.0 | 42.3 |
| Owl Brand Cottonseed Meal | 4840 | 5595 | Rollin Rogers & Edward Haines, Pendleton | 7.7 | 6.0 | 6.5 | 41.0 | 41.8 |
| Owl Brand Cottonseed Meal | 4840 | 5837 | Terre Haute Cattle Co., Terre Haute | 7.0 | 6.0 | 7.0 | 41.0 | 42.3 |
| Owl Brand Cottonseed Meal | 4840 | 6125 | Tuhey Canning Co., Muncie.... | 6.9 | 6.0 | 6.5 | 41.0 | 41.1 |
| Owl Brand Cottonseed Meal | 4840 | 6169 | Wm. Raff, Conrad | 7.9 | 6.0 | 6.0 | 41.0 | 41.3 |
| Owl Brand Cottonseed Meal | 4840 | 6170 | Wm. Raff, Conrad | 7.4 | 6.0 | 6.0 | 41.0 | 41.3 |
| Owl Brand Cottonseed Meal | 4840 | 6186 | Crabbs Reynolds Taylor Co., Lafayette | 6.3 | 6.0 | 6.8 | 41.0 | 42.6 |
| Owl Brand Cottonseed Meal | 4840 | 6218 | Crabbs Reynolds Taylor Co., Lafayette | 6.4 | 6.0 | 7.4 | 41.0 | 42.9 |
| Owl Brand Cottonseed Meal | 4840 | 6827 | Ezra E. Rupel, Briant | 6.9 | 6.0 | 7.7 | 41.0 | 41.2 |
| Owl Brand Cottonseed Meal | 4840 | 6954 | John Brown & Son, Shelby.... | 5.9 | 6.0 | 7.0 | 41.0 | 44.5 |
| †Owl Brand Cottonseed Meal | 4840 | 7984 | Wallace Milling Co., Dale..... | 7.6 | 6.0 | 6.7 | 41.0 | 41.4 |
| Owl Brand Cottonseed Meal ¹⁷⁴ | 4840 | 7994 | Tapp & Bridwell, Bloomington.. | 7.0 | 6.0 | 6.7 | 41.0 | 38.9 |
| Owl Brand Cottonseed Meal | 4840 | 8077 | Animal Husbandry Dept., Purdue | 7.2 | 6.0 | 6.6 | 41.0 | 42.3 |
| Owl Brand Cottonseed Meal | 4840 | 8147 | C. G. Hunger, Madison | 6.6 | 6.0 | 7.2 | 41.0 | 42.1 |
| Dove Brand Cottonseed Meal | 4885 | 5448 | Barney Eders & J. W. Linkhart, North Vernon | 6.5 | 6.0 | 6.5 | 38.6 | 39.5 |

†† Not tagged. Labels furnished
¹⁷² Withdrawn. Returned to mfrs. Refund. See page 20
¹⁷³ Refund. See page 20
¹⁷⁴ 15 tons removed from sale. Relabeled No. 8009. Refund. See page 20

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|--------------|---|--------------------|---------------------|-------|-------------------------|-------|
| | Official | Inspection D | | | Guar-anteed | Found | Guar-anteed | Found |
| Brode & Company, F. W., Memphis, Tenn. | | | | | | | | |
| Jay Brand Cotton Seed Meal | 7902 | 5372 | S. J. Carroll, Logansport | 6.2 | 5.0 | 6.6 | 36.0 | 39.1 |
| Jay Brand Cotton Seed Meal | 7902 | 5466 | Hurst & Co., Indianapolis | 6.2 | 5.0 | 9.0 | 36.0 | 36.3 |
| Jay Brand Cotton Seed Meal | 7902 | 5521 | P. Dörner & Sons Co., Frankfort | 6.6 | 5.0 | 6.1 | 36.0 | 38.0 |
| Jay Brand Cotton Seed Meal ¹⁷⁵ | 7902 | 6381 | Probst & Kassebaum, Indianapolis | 6.0 | 5.0 | 7.3 | 36.0 | 33.9 |
| Jay Brand Cotton Seed Meal ¹⁷⁶ | 7902 | 6510 | Geo. Steckley, Kendallville | 8.3 | 5.0 | 6.5 | 36.0 | 34.5 |
| Jay Brand Cotton Seed Meal | 7902 | 8089 | Paoli Milling Co., Paoli | 7.3 | 5.0 | 6.5 | 36.0 | 35.1 |
| Jay Brand Cotton Seed Meal | 7902 | 8177 | C. E. Bash & Co., Huntington | 7.2 | 5.0 | 6.3 | 36.0 | 33.5 |
| Dove Brand Cotton Seed Meal | 8009 | 5379 | Probst & Kassebaum, Indianapolis | 7.1 | 6.0 | 6.6 | 38.6 | 38.9 |
| Dove Brand Cotton Seed Meal | 8009 | 5388 | Chas. H. Reynolds, Osgood | 6.7 | 6.0 | 7.0 | 38.6 | 39.5 |
| †Dove Brand Cotton Seed Meal | 8009 | 5414 | Wm. P. Schrock, Decatur | 6.4 | 6.0 | 6.6 | 38.6 | 39.8 |
| †Dove Brand Cotton Seed Meal | 8009 | 5429 | Patrick Wade, Madison | 6.1 | 6.0 | 6.2 | 38.6 | 38.6 |
| Dove Brand Cotton Seed Meal | 8009 | 5442 | F. N. Benton, Letts Corner | 6.3 | 6.0 | 6.7 | 38.6 | 39.7 |
| †Dove Brand Cotton Seed Meal | 8009 | 5449 | Dr. T. J. Martin, Aurora | 6.6 | 6.0 | 7.0 | 38.6 | 40.0 |
| Dove Brand Cotton Seed Meal | 8009 | 5621 | Terre Haute Cattle Co., Terre Haute | 6.6 | 6.0 | 6.9 | 38.6 | 39.8 |
| Dove Brand Cotton Seed Meal | 8009 | 5622 | Terre Haute Cattle Co., Terre Haute | 6.6 | 6.0 | 6.7 | 38.6 | 38.9 |
| Dove Brand Cotton Seed Meal | 8009 | 5633 | Heldt Co., Evansville | 6.2 | 6.0 | 6.9 | 38.6 | 41.9 |
| Dove Brand Cotton Seed Meal | 8009 | 5644 | Chas. Winslow, Carthage | 6.1 | 6.0 | 6.4 | 38.6 | 38.7 |
| Dove Brand Cotton Seed Meal | 8009 | 5658 | W. H. Small & Co., Evansville | 6.0 | 6.0 | 7.1 | 38.6 | 40.4 |
| †Dove Brand Cotton Seed Meal | 8009 | 5740 | Albion Bohnert, Jasper | 6.5 | 6.0 | 7.0 | 38.6 | 41.0 |
| Dove Brand Cotton Seed Meal | 8009 | 5745 | Geo. P. Wagner, Jasper | 6.1 | 6.0 | 6.5 | 38.6 | 38.5 |
| Dove Brand Cotton Seed Meal ¹⁷⁷ | 8009 | 5962 | McCoy & Garten, Indianapolis | 7.5 | 6.0 | 5.9 | 38.6 | 37.1 |
| Dove Brand Cotton Seed Meal | 8009 | 6083 | McCoy & Garten, Indianapolis | 5.3 | 6.0 | 6.7 | 38.6 | 40.2 |
| Dove Brand Cotton Seed Meal | 8009 | 6084 | McCoy & Garten, Indianapolis | 6.2 | 6.0 | 6.3 | 38.6 | 40.3 |
| Dove Brand Cotton Seed Meal | 8009 | 6085 | McCoy & Garten, Indianapolis | 6.6 | 6.0 | 6.4 | 38.6 | 38.4 |
| Dove Brand Cotton Seed Meal | 8009 | 6120 | Paoli Milling Co., Paoli | 7.8 | 6.0 | 6.0 | 38.6 | 38.4 |
| Dove Brand Cotton Seed Meal | 8009 | 6122 | M. L. Miers, Burney | 7.2 | 6.0 | 6.8 | 38.6 | 38.7 |
| Dove Brand Cotton Seed Meal | 8009 | 6131 | W. B. Crane, Rushville | 7.0 | 6.0 | 6.9 | 38.6 | 40.4 |
| Dove Brand Cotton Seed Meal | 8009 | 6132 | John B. Frazee, Rushville | 6.2 | 6.0 | 10.3 | 38.6 | 44.7 |
| Dove Brand Cotton Seed Meal | 8009 | 6176 | Suckow & Co. & Valentine & Valentine, Franklin | 6.1 | 6.0 | 7.0 | 38.6 | 39.6 |
| Dove Brand Cotton Seed Meal | 8009 | 6191 | Boram & Fifield, Hebron | 6.0 | 6.0 | 6.7 | 38.6 | 38.8 |
| Dove Brand Cotton Seed Meal | 8009 | 6743 | McCoy Bros., Liberty | 6.0 | 6.0 | 7.6 | 38.6 | 39.2 |
| Dove Brand Cotton Seed Meal | 8009 | 8170 | H. C. Jessup, Madison | 6.2 | 6.0 | 7.0 | 38.6 | 41.1 |
| Dove Brand Cotton Seed Meal ¹⁷⁸ | 8009 | 8200 | A. H. Hilands, Madison | 6.8 | 6.0 | 6.9 | 38.6 | 38.2 |
| Dove Brand Cotton Seed Meal | 8009 | 8202 | Ernest Smith, Madison | 6.8 | 6.0 | 6.9 | 38.6 | 38.2 |
| Dove Brand Cotton Seed Meal | 8009 | 8208 | Ed. & Geo. Schuman, Madison | 6.5 | 6.0 | 6.9 | 38.6 | 40.3 |
| Dove Brand Cotton Seed Meal | 8009 | 8326 | Fisher & Fisher, Nabb | 6.4 | 6.0 | 6.9 | 38.6 | 38.7 |
| †Dove Brand Cotton Seed Meal | 8009 | 8351 | R. V. Snapp, Lebanon | 7.2 | 6.0 | 7.0 | 38.6 | 39.1 |
| Dove Brand Cotton Seed Meal | 8009 | 8364 | Marengo Milling Co., Marengo | 6.5 | 6.0 | 6.7 | 38.6 | 39.3 |
| Buckeye Cotton Oil Company, The, Cincinnati, Ohio | | | | | | | | |
| "Buckeye" Prime Cottonseed Meal | 5534 | 5789 | Crabbs Reynolds Taylor Co., LaFayette | 4.8 | 6.0 | 6.4 | 38.6 | 37.9 |
| Burnett Company, The William A., Louisville, Ky. | | | | | | | | |
| Burnett's Prime Cotton Seed Meal ¹⁷⁹ | 7160 | 7877 | J. M. Hornung & Sons, Greensburg | 7.2 | 6.0 | 6.5 | 38.6 | 36.7 |
| Burnett's Prime Cotton Seed Meal ¹⁸⁰ | 7160 | 8324 | Huffstetter & Gray, Nabb | 6.8 | 6.0 | 6.1 | 38.6 | 36.2 |
| Burnett's Prime Cotton Seed Meal | 7160 | 8325 | Huffstetter & Gray, Nabb | 6.9 | 6.0 | 5.9 | 38.6 | 38.1 |
| Burnett's Prime Cotton Seed Meal | 7160 | 8391 | J. & S. Emison & Co., Vincennes | 6.5 | 6.0 | 8.2 | 38.6 | 38.6 |
| Campbell & Company, C. L., Little Rock, Ark. | | | | | | | | |
| Double Hump Camel Brand Cotton Seed Meal ^{180a} | 7937 | 8357 | Farmer's Exchange, Mulberry | 7.4 | 6.0 | 7.6 | 41.0 | 40.3 |
| Single Hump Camel Brand Cotton Seed Meal | 8031 | 5345 | Jay Grain Co., Mulberry | 6.2 | 6.0 | 6.7 | 38.5 | 39.8 |
| Single Hump Camel Brand Cotton Seed Meal | 8031 | 5463 | Marshall & O'Hair, Greencastle | 5.3 | 6.0 | 7.1 | 38.5 | 33.3 |

†† Not tagged. Labels furnished

¹⁷⁵ 14 ⁸/₁₀ tons removed from sale¹⁷⁶ 2 tons removed from sale. Refund. See page 20. Returned to mfgs.¹⁷⁷ 2 tons removed from sale¹⁷⁸ Composited with D8202¹⁷⁹ Refund. See page 20¹⁸⁰ For consumer's own use. Refund. See page 20^{180a} Refund. See page 20

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Campbell & Company, C. L., Little Rock, Ark. Single Hump Camel Brand Cotton Seed Meal ----- | 8031 | 6119 | Jay Grain Co., Mulberry ----- | 5.5 | 6.0 | 6.4 | 38.5 | 38.6 |
| Baby Camel Brand Cotton Seed Meal ----- | 8144 | 5893 | Goodrich Bros. Hay & Grain Co., Winchester ----- | 6.4 | 6.0 | 7.4 | 36.0 | 35.7 |
| †Baby Camel Brand Cotton Seed Meal ¹⁸¹ ----- | 8144 | 7025 | Berry Bros., Lynn ----- | 8.0 | 6.0 | 6.7 | 36.0 | 33.9 |
| Chicago Heights Oil M'fg. Company, Chicago, Ill. "Prize" Brand Cottonseed Meal ----- | 8000 | 5984 | Wm. Kessler, Morocco ----- | 7.6 | 6.0 | 6.4 | 38.5 | 37.7 |
| Choctaw Sales Company, Kansas City, Mo. "Choctaw Quality" Cottonseed Meal and Cake ----- | 7176 | 5973 | J. J. Lawler, Rensselaer ----- | 7.2 | 6.0 | 6.3 | 43.0 | 44.6 |
| "Choctaw Quality" Cottonseed Meal and Cake ----- | 7176 | 5978 | Thos. Lang, Rensselaer ----- | 6.0 | 6.0 | 7.1 | 43.0 | 44.3 |
| "Choctaw Quality" Cottonseed Meal and Cake ¹⁸² ----- | 7176 | 6057 | J. Brown & Son, Shelby ----- | 5.3 | 6.0 | 7.3 | 43.0 | 40.1 |
| "Choctaw Quality" Cottonseed Meal and Cake ----- | 7176 | 6105 | J. J. Lawler, Rensselaer ----- | 7.3 | 6.0 | 6.0 | 43.0 | 44.2 |
| "Choctaw Quality" Cottonseed Meal and Cake ----- | 7176 | 6106 | J. J. Lawler, Fair Oaks ----- | 6.0 | 6.0 | 8.3 | 43.0 | 44.2 |
| Choctaw Standard Cottonseed Meal and Cake ¹⁸³ ----- | 7177 | 5501 | Edw. J. Randle, Moody ----- | 6.8 | 6.0 | 5.7 | 41.0 | 39.0 |
| Choctaw Standard Cottonseed Meal and Cake ----- | 7177 | 5682 | D. L. Trout, Lee ----- | 6.1 | 6.0 | 7.2 | 41.0 | 41.3 |
| Choctaw Standard Cottonseed Meal and Cake ----- | 7177 | 6014 | Geo. W. Hinkle, New Ross ----- | 5.4 | 6.0 | 8.7 | 41.0 | 40.6 |
| Choctaw Standard Cottonseed Meal and Cake ----- | 7177 | 6180 | D. L. Trout, Lee ----- | 6.6 | 6.0 | 7.3 | 41.0 | 42.0 |
| Choctaw Prime Cottonseed Meal and Cake ----- | 8159 | 5508 | J. S. Minch, Chalmers ----- | 5.8 | 5.0 | 5.7 | 38.5 | 39.4 |
| Cottonseed Products Company, The, Louisville, Ky. Good Cottonseed Meal ¹⁸⁴ ----- | 7981 | 7988 | Charlestown Milling Co., Charlestown ----- | 8.3 | 6.0 | 6.6 | 36.0 | 34.7 |
| Good Cottonseed Meal ----- | 7981 | 8033 | New Albany Milling Co., New Albany ----- | 7.4 | 6.0 | 7.0 | 36.0 | 37.5 |
| Good Cottonseed Meal ¹⁸⁵ ----- | 7981 | 8041 | John H. Shine & Co., New Albany ----- | 6.7 | 6.0 | 6.7 | 36.0 | 35.2 |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. Crescent Brand Cotton Seed Meal ----- | 2765 | 6141 | Manufacturers ----- | 5.2 | 7.5 | 7.3 | 41.0 | 47.2 |
| †Crescent Brand Cotton Seed Meal ----- | 2765 | 7851 | Manufacturers ----- | 6.0 | 7.5 | 8.0 | 41.0 | 43.9 |
| †Crescent Brand Cotton Seed Meal ----- | 2765 | 8076 | Homer Dresbach & Ernest Stotton, Chalmers ----- | 6.3 | 7.5 | 7.8 | 41.0 | 44.4 |
| Davis, S. P., Little Rock, Ark. Good Luck Brand Cottonseed Meal ----- | 6671 | 5424 | M. S. Strawn, Seireleville ----- | 7.1 | 6.0 | 6.7 | 41.0 | 42.1 |
| Good Luck Brand Cottonseed Meal ----- | 6671 | 5943 | Crabbs Reynolds Taylor Co., Crawfordsville ----- | 5.6 | 6.0 | 7.0 | 41.0 | 44.6 |
| Good Luck Brand Cottonseed Meal ----- | 6671 | 5645 | Thomas Wilkins, Linden ----- | 6.9 | 6.0 | 6.7 | 41.0 | 42.5 |
| Good Luck Brand Cottonseed Meal ----- | 6671 | 6019 | Crabbs Reynolds Taylor Co., Crawfordsville ----- | 6.1 | 6.0 | 7.0 | 41.0 | 41.9 |
| Good Luck Brand Cottonseed Meal ----- | 6671 | 6116 | Crabbs Reynolds Taylor Co., Crawfordsville ----- | 5.9 | 6.0 | 7.1 | 41.0 | 43.8 |
| Good Luck Brand Cottonseed Meal ----- | 6671 | 6159 | Majestic Distillery, Terre Haute ----- | 7.0 | 6.0 | 6.8 | 41.0 | 41.8 |
| Veribest Brand Cottonseed Meal ----- | 7432 | 5580 | Klondike Milling Co., Danville ----- | 6.3 | 6.0 | 6.5 | 38.5 | 38.7 |
| Veribest Brand Cottonseed Meal ----- | 7432 | 5764 | The Farmers Mill, Huntingburg ----- | 6.6 | 6.0 | 5.7 | 38.5 | 38.7 |
| Veribest Brand Cottonseed Meal ¹⁸⁶ ----- | 7432 | 5974 | Suckow Co., Franklin ----- | 5.0 | 6.0 | 5.8 | 38.5 | 37.4 |
| †Beauty Brand Cottonseed Meal and Cracked Screened Cake ----- | 8152 | 5498 | Sam Leni, Marion ----- | 6.4 | 6.0 | 6.8 | 36.0 | 35.5 |
| Beauty Brand Cottonseed Meal and Cracked Screened Cake ----- | 8152 | 8134 | W. E. Griner & Son, Middlebury ----- | 6.2 | 6.0 | 6.7 | 36.0 | 37.6 |

†† Not tagged. Labels furnished

¹⁸¹ 400 lbs. removed from sale. Refund. See page 20¹⁸² Refund. See page 20¹⁸³ Refund. See page 20¹⁸⁴ 19 tons removed from sale. Relabeled. Refund. See page 20¹⁸⁵ Refund. See page 20¹⁸⁶ Refund. See page 20

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Davis, S. P., Little Rock, Ark. Good Luck Brand Cottonseed Meal and Cracked Screened Cake----- | 8438 | 6153 | Ora L. Loveless, Clarks Hill---- | 6.2 | 6.0 | 7.0 | 41.0 | 43.7 |
| Good Luck Brand Cottonseed Meal and Cracked Screened Cake----- | 8438 | 8266 | H. C. Vestal, Montezuma ----- | 6.3 | 6.0 | 8.2 | 41.0 | 40.5 |
| East St. Louis Oil Company, National Stock Yards, Ill. East St. Louis Brand Cotton Seed Meal | 6258 | 5086 | L. E. Simpson, Vincennes ----- | 6.2 | 6.0 | 6.1 | 38.5 | 41.9 |
| East St. Louis Brand Cotton Seed Meal | 6258 | 6016 | Goshen Milling Co., Goshen----- | 6.3 | 6.0 | 6.3 | 38.5 | 41.3 |
| East St. Louis Brand Cotton Seed Meal | 6258 | 6520 | Goshen Milling Co., Goshen----- | 7.8 | 6.0 | 5.7 | 38.5 | 38.0 |
| East St. Louis Brand Cotton Seed Meal | 6258 | 7216 | J. W. Emison, Bruceville ----- | 7.9 | 6.0 | 5.9 | 38.5 | 39.8 |
| East St. Louis Brand Cotton Seed Meal | 6258 | 8015 | Salem Co-operative Assoc., Salem----- | 7.2 | 6.0 | 6.2 | 38.5 | 39.0 |
| ††East St. Louis Brand Cotton Seed Meal ¹⁸⁷ ----- | 6258 | 8138 | Walter Scranage, Goshen ----- | 6.7 | 6.0 | 6.6 | 38.5 | 38.0 |
| East St. Louis Brand Cotton Seed Meal | 6258 | 8139 | J. J. Zollinger, Goshen ----- | 6.7 | 6.0 | 6.6 | 38.5 | 38.0 |
| East St. Louis Brand Cotton Seed Meal | 6258 | 8361 | Tower & Merriman, Marengo----- | 6.3 | 6.0 | 6.9 | 38.5 | 39.7 |
| ††Illinois Brand Cotton Seed Meal----- | 7091 | 7771 | J. J. Lawler, Fair Oaks ----- | 7.1 | 6.0 | 6.1 | 41.0 | 40.5 |
| ††Illinois Brand Cotton Seed Meal----- | 7091 | 7772 | J. J. Lawler, Pleasant Ridge----- | 6.7 | 6.0 | 6.3 | 41.0 | 41.6 |
| St. Clair Brand Cotton Seed Meal----- | 8859 | 8812 | J. M. Hammond, Milltown----- | 6.9 | 5.0 | 6.3 | 36.0 | 36.4 |
| ††St. Clair Brand Cotton Seed Meal----- | 8859 | 8893 | L. C. Simpson, Vincennes ----- | 6.3 | 5.0 | 5.9 | 36.0 | 37.7 |
| Eberts, H. F. H., Little Rock, Ark. Milko Brand Cottonseed Meal----- | 7428 | 5491 | Vincennes Feed & Produce Co., Vincennes----- | 6.7 | 5.5 | 6.5 | 38.6 | 40.1 |
| Milko Brand Cottonseed Meal ¹⁸⁸ ----- | 7428 | 5573 | Silas Y. Hardwick, Danville----- | 8.1 | 5.5 | 5.9 | 38.6 | 36.5 |
| Milko Brand Cottonseed Meal----- | 7428 | 5703 | Roth Bros., Rensselaer ----- | 4.4 | 5.5 | 6.6 | 38.6 | 39.2 |
| ††Milko Brand Cottonseed Meal----- | 7428 | 5718 | E. A. Kitchel, Kitchel ----- | 7.4 | 5.5 | 6.7 | 38.6 | 40.1 |
| Milko Brand Cottonseed Meal----- | 7428 | 5719 | E. A. Kitchel, Kitchel ----- | 6.1 | 5.5 | 5.9 | 38.6 | 38.3 |
| Milko Brand Cottonseed Meal----- | 7428 | 5739 | (1) Suckow Co., Franklin ----- | 6.7 | 5.5 | 6.1 | 38.6 | 42.0 |
| Milko Brand Cottonseed Meal----- | 7428 | 5739 | (2) Suckow Co., Franklin ----- | 6.7 | 5.5 | 6.1 | 38.6 | 42.0 |
| Milko Brand Cottonseed Meal----- | 7428 | 5758 | Ira L. Pritchard, Edinburg----- | 8.0 | 5.5 | 6.2 | 38.6 | 38.7 |
| ††Milko Brand Cottonseed Meal----- | 7428 | 5787 | J. B. Harrell & Son, Fairland----- | 7.0 | 5.5 | 6.7 | 38.6 | 40.4 |
| Milko Brand Cottonseed Meal----- | 7428 | 5829 | Valentine & Valentine, Franklin----- | 6.2 | 5.5 | 6.5 | 38.6 | 40.4 |
| ††Milko Brand Cottonseed Meal----- | 7428 | 5830 | Trafalgar Grain Co., Trafalgar----- | 7.5 | 5.5 | 6.7 | 38.6 | 40.1 |
| Milko Brand Cottonseed Meal----- | 7428 | 5832 | Valentine & Valentine, Franklin----- | 7.6 | 5.5 | 6.2 | 38.6 | 39.6 |
| Milko Brand Cottonseed Meal----- | 7428 | 5904 | Hurst & Co., Indianapolis----- | 6.4 | 5.5 | 6.4 | 38.6 | 39.3 |
| Milko Brand Cottonseed Meal ¹⁸⁹ ----- | 7428 | 5965 | Hurst & Co., Indianapolis----- | 8.9 | 5.5 | 6.5 | 38.6 | 37.3 |
| Milko Brand Cottonseed Meal----- | 7428 | 5971 | Ed. Myers, Danville ----- | 6.0 | 5.5 | 6.5 | 38.6 | 40.1 |
| ††Milko Brand Cottonseed Meal----- | 7428 | 5972 | Valentine & Valentine, Franklin----- | 7.0 | 5.5 | 6.2 | 38.6 | 39.5 |
| ††Milko Brand Cottonseed Meal----- | 7428 | 6021 | Jos. H. Mullendore, Franklin----- | 5.8 | 5.5 | 6.2 | 38.6 | 38.0 |
| Milko Brand Cottonseed Meal----- | 7428 | 6078 | Hurst & Co., Indianapolis----- | 7.0 | 5.5 | 6.3 | 38.6 | 37.7 |
| Milko Brand Cottonseed Meal----- | 7428 | 6123 | Chas. Gartin, Burney ----- | 7.9 | 5.5 | 7.0 | 38.6 | 41.8 |
| ††Milko Brand Cottonseed Meal----- | 7428 | 6136 | A. J. Mable, Connorsville----- | 7.2 | 5.5 | 6.4 | 38.6 | 38.4 |
| Milko Brand Cottonseed Meal----- | 7428 | 6487 | McCoy & Garten, Indianapolis----- | 8.0 | 5.5 | 6.9 | 38.6 | 40.0 |
| Milko Brand Cottonseed Meal----- | 7428 | 7346 | Indiana Seed Co., Indianapolis----- | 7.5 | 5.5 | 7.0 | 38.6 | 38.2 |
| Bossy Brand Cotton Seed Meal----- | 8133 | 6012 | Lingeman, Adams & Co., Brownsburg----- | 5.9 | 5.0 | 6.8 | 36.0 | 38.5 |
| Bossy Brand Cotton Seed Meal----- | 8133 | 6121 | W. S. Smiley, Burney ----- | 8.4 | 5.0 | 6.7 | 36.0 | 37.4 |
| Edinger & Company, Louisville, Ky. E-Co Cotton Seed Meal----- | 8053 | 5875 | Scottsburg Milling Co., Scottsburg----- | 7.9 | 6.0 | 7.0 | 36.0 | 36.4 |
| E-Co Cotton Seed Meal----- | 8053 | 6300 | Pickens & Brengle, Orleans----- | 5.5 | 6.0 | 6.4 | 36.0 | 37.7 |
| E-Co Cotton Seed Meal----- | 8053 | 6732 | Salem Co-operative Assoc., Salem----- | 6.6 | 6.0 | 6.3 | 36.0 | 37.0 |
| E-Co Cotton Seed Meal----- | 8053 | 8109 | Orleans Mill & Elevator Co., Orleans----- | 6.7 | 6.0 | 6.2 | 36.0 | 33.8 |
| Eldred Mill Company, Jackson, Mich. Gusto Brand Cotton Seed Meal----- | 8125 | 5717 | Omer G. Whelan, Richmond----- | 5.2 | 5.0 | 7.1 | 36.0 | 36.0 |
| Feeders Supply Company, Kansas City, Mo. ††"Equity Brand" Cotton Seed Meal----- | 6167 | 6103 | J. J. Lawler, Pleasant Ridge----- | 6.1 | 6.0 | 7.4 | 41.0 | 43.6 |
| "Equity Brand" Red Tag Cotton Seed Meal and Cake----- | 7690 | 5678 | W. H. Webb, Inglefield ----- | 6.3 | 5.0 | 7.5 | 38.6 | 39.0 |
| Goodrich Bros. Hay & Grain Company, Winchester, Ind. Magic Cottonseed Meal----- | 7317 | 6195 | Manufacturers ----- | 7.7 | 6.0 | 8.5 | 36.0 | 38.3 |

†† Not tagged. Labels furnished

187 Composited with D8139

188 Refund. See page 20

189 Between 4 and 5 tons removed from sale

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Gronauer & Company, Gus, Memphis, Tenn. "Daisy Brand" Cottonseed Meal..... | 7966 | 5687 | Frank Adams, Montezuma ----- | 5.0 | 6.0 | 7.2 | 38.6 | 40.1 |
| Hayes Grain & Commission Company, Little Rock, Ark. Arkansaw Brand Cotton Seed Meal--- | 8825 | 7993 | Bloomington Milling Co., Bloomington ----- | 7.1 | 5.0 | 6.6 | 36.0 | 36.0 |
| Hopkins Fertilizer Company, New Albany, Ind. Cotton Seed Meal ----- | 8456 | 6275 | New Albany Milling Co., New Albany ----- | 8.8 | 5.0 | 7.1 | 36.0 | 37.1 |
| Cotton Seed Meal ----- | 8456 | 6276 | John H. Shine & Co., New Albany ----- | 9.5 | 5.0 | 7.2 | 36.0 | 37.2 |
| Cotton Seed Meal ----- | 8456 | 6731 | O. L. Cauble, Pekin ----- | 8.5 | 5.0 | 7.3 | 36.0 | 36.3 |
| Humphreys, Godwin Company, Memphis, Tenn. Dixie Brand Cottonseed Meal ----- | 5064 | 5552 | Robert Bailey, Wabash ----- | 6.4 | 6.0 | 6.2 | 41.0 | 41.8 |
| Dixie Brand Cottonseed Meal ----- | 5064 | 6112 | H. E. Pitman, Bedford ----- | 8.1 | 6.0 | 7.0 | 41.0 | 40.4 |
| Dixie Brand Cottonseed Meal ----- | 5064 | 6113 | Miles Standish, Bedford ----- | 7.5 | 6.0 | 6.5 | 41.0 | 40.4 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 5381 | Indiana Seed Co., Indianapolis ----- | 5.3 | 6.0 | 7.1 | 38.5 | 38.4 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 5382 | Indiana Seed Co., Indianapolis ----- | 5.7 | 6.0 | 7.1 | 38.5 | 38.8 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 5383 | Indiana Seed Co., Indianapolis ----- | 5.4 | 6.0 | 6.7 | 38.5 | 38.5 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 5415 | Judson Creamery & Produce Co., North Judson ----- | 6.5 | 6.0 | 7.3 | 38.5 | 39.3 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 5417 | Judson Creamery & Produce Co., North Judson ----- | 6.6 | 6.0 | 7.2 | 38.5 | 38.5 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 5520 | S. A. Bryan & H. R. Smith, Rossville ----- | 6.3 | 6.0 | 7.2 | 38.5 | 38.5 |
| Forfat Brand Cottonseed Meal ¹⁰⁰ ----- | 7116 | 5522 | Willard Milner, Frankfort ----- | 7.0 | 6.0 | 6.0 | 38.5 | 37.7 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 5524 | J. H. Harper, Sharpsville ----- | 6.0 | 6.0 | 7.0 | 38.5 | 41.8 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 5525 | J. H. Harper, Sharpsville ----- | 5.8 | 6.0 | 7.4 | 38.5 | 41.0 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 5583 | J. H. Leonard, Sullivan ----- | 6.5 | 6.0 | 6.8 | 38.5 | 38.7 |
| Forfat Brand Cottonseed Meal ¹⁰¹ ----- | 7116 | 5594 | G. W. Robbins & John F. Allen, Sullivan ----- | 6.8 | 6.0 | 6.7 | 38.5 | 37.7 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 5749 | Farmers Supply Co., Spencer ----- | 5.4 | 6.0 | 7.0 | 38.5 | 38.9 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 6001 | Davis Grain Co. Clarks Hill ----- | 7.3 | 6.0 | 7.1 | 38.5 | 39.0 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 6050 | J. E. Remley & Son, Waynetown ----- | 6.7 | 6.0 | 7.0 | 38.5 | 38.6 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 6489 | Hurst & Co., Indianapolis ----- | 8.1 | 6.0 | 8.1 | 38.5 | 39.6 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 7116 | Hurst & Co., Columbus ----- | 7.8 | 6.0 | 7.7 | 38.5 | 40.5 |
| Forfat Brand Cottonseed Meal ----- | 7116 | 8212 | Crabbs Reynolds Taylor Co., Lafayette ----- | 5.4 | 6.0 | 7.6 | 38.5 | 40.0 |
| Danish Brand Cottonseed Meal ----- | 7178 | 5592 | Omer G. Whelan, Richmond ----- | 7.1 | 5.0 | 6.5 | 36.0 | 36.5 |
| Danish Brand Cottonseed Meal ----- | 7178 | 7813 | The Heldt Co., Evansville ----- | 6.4 | 5.0 | 6.1 | 36.0 | 36.5 |
| Imperial Cotto Milling Company, The, Chicago, Ill. Imperial Brand Cottonseed Meal ¹⁰² ----- | 7307 | 5390 | W. P. Neel, Holton ----- | 7.3 | 5.5 | 6.5 | 36.0 | 35.5 |
| Imperial Cotto Sales Company, Chicago, Ill. †Imperial Brand Cottonseed Meal ----- | 8091 | 5502 | R. B. Tolin, Fair Oaks ----- | 6.8 | 5.0 | 7.6 | 36.0 | 36.2 |
| †Imperial Brand Cottonseed Meal ----- | 8091 | 5505 | Hartman & Dotterer, Bluffton ----- | 6.5 | 5.0 | 6.5 | 36.0 | 38.3 |
| †Imperial Brand Cottonseed Meal ----- | 8091 | 5968 | H. G. Hillis, Fair Oaks ----- | 6.9 | 5.0 | 8.3 | 36.0 | 35.1 |
| †Imperial Brand Cottonseed Meal ----- | 8091 | 6104 | J. J. Totten & Son, Flat Rock ----- | 7.5 | 5.0 | 7.9 | 36.0 | 37.5 |
| †Imperial Brand Cottonseed Meal ----- | 8091 | 6209 | H. A. Stewart, Hope ----- | 7.3 | 5.0 | 7.8 | 36.0 | 37.5 |
| †Imperial Brand Cottonseed Meal ----- | 8091 | 8122 | H. O. Greene, Goshen ----- | 6.8 | 5.0 | 5.2 | 36.0 | 35.8 |
| †Imperial Brand Cottonseed Meal ----- | 8091 | 8123 | E. D. Logan, Goshen ----- | 6.7 | 5.0 | 5.5 | 36.0 | 36.0 |
| †Imperial Brand Cottonseed Meal ----- | 8091 | 8124 | Bert Stutsman, Goshen ----- | 6.6 | 5.0 | 5.3 | 36.0 | 35.9 |
| †Imperial Brand Cottonseed Meal ----- | 8091 | 8278 | J. Jay Baldwin, Crown Point ----- | 6.7 | 5.0 | 7.1 | 36.0 | 36.3 |
| Imperial Cotto Brand Choice Cotton- seed Meal ----- | 8092 | 8377 | Gus Weyle, Economy ----- | 6.5 | 6.0 | 6.5 | 41.0 | 41.3 |
| †Imperial Cotto Brand Choice Cotton- seed Meal ----- | 8092 | 8378 | Frank C. Cain, Economy ----- | 6.6 | 6.0 | 6.4 | 41.0 | 42.6 |
| Imperial Cotto Brand Prime Cotton- seed Meal ----- | 8093 | 5509 | C. W. Brackney, Brookston ----- | 5.9 | 5.0 | 7.5 | 38.5 | 39.9 |

* Not tagged

†† Not tagged. Labels furnished

¹⁰⁰ Refund. See page 20¹⁰¹ Refund. See page 20¹⁰² 4 tons removed from sale. Refund. See page 20

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude protein per cent. | | Crude protein per cent. | |
|--|----------|-----------------|---|-----------------------|-------------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Imperial Cotto Sales Company, Chicago, Ill. | | | | | | | | |
| ††Imperial Cotto Brand Prime Cotton- seed Meal | 8093 | 5995 | John W. Johnson, Goodland---- | 6.7 | 5.0 | 6.0 | 38.5 | 40.1 |
| Imperial Cotto Brand Prime Cotton- seed Meal | 8093 | 6126 | Arthur Cecil & Sons, Muncie---- | 6.4 | 5.0 | 7.3 | 38.5 | 39.4 |
| Imperial Cotto Brand Prime Cotton- seed Meal | 8093 | 6127 | Arthur Cecil & Sons, Selma ---- | 6.5 | 5.0 | 7.6 | 38.5 | 38.5 |
| Imperial Cotto Brand Prime Cotton- seed Meal | 8093 | 8355 | John E. Wilson, Wingate----- | 7.4 | 5.0 | 6.7 | 38.5 | 39.6 |
| Imperial Cotto Brand Extra Choice Cottonseed Meal | 8401 | 8042 | A. T. Brown, Monon ----- | 7.2 | 8.5 | 8.1 | 43.0 | 47.0 |
| Imperial Cotto Brand Extra Choice Cottonseed Meal | 8401 | 8043 | J. G. Brown, Monon ----- | 7.0 | 8.5 | 7.4 | 43.0 | 47.7 |
| ††Imperial Cotto Brand Extra Choice Cottonseed Meal | 8401 | 8047 | W. N. Mosely, Francesville----- | 7.1 | 8.5 | 7.7 | 43.0 | 47.1 |
| *Imperial Cotto Brand Choice Cotton- seed Meal | ----- | 5966 | W. H. Darlington, Laporte ---- | 5.6 | --- | 7.8 | --- | 43.5 |
| *Imperial Cotto Brand Choice Cotton- seed Meal | ----- | 5967 | W. H. Darlington, Laporte ---- | 6.5 | --- | 10.0 | --- | 43.5 |
| *Imperial Cotto Brand Choice Cotton- seed Meal | ----- | 6585 | J. J. Lawler, Fair Oaks ----- | 6.8 | --- | 6.5 | --- | 41.0 |
| *Cottonseed Meal | ----- | 8046 | Horton & Heltzel, Lee ----- | 7.0 | --- | 7.4 | --- | 47.3 |
| Johnson & Company, W. B., Memphis, Tenn. | | | | | | | | |
| Imperial Brand Cotton Seed Meal---- | 6931 | 5564 | Farmers Elevator Co., Kempton | 6.3 | 6.0 | 8.6 | 38.0 | 40.7 |
| Imperial Brand Cotton Seed Meal---- | 6931 | 5648 | National Military Home, Marion ----- | 5.5 | 6.0 | 7.8 | 38.0 | 39.6 |
| Imperial Brand Cotton Seed Meal---- | 6931 | 5652 | John Doty, Marion ----- | 6.6 | 6.0 | 6.7 | 38.0 | 38.8 |
| Jordan, Geo. M., Vincennes, Ind. Cotton Seed Meal | 8861 | 8384 | O. L. Barr Grain Co., Bicknell-- | 6.8 | 6.0 | 6.7 | 37.0 | 36.2 |
| Lanier Bros., Nashville, Tenn. Canary Brand Cottonseed Meal | 5538 | 8379 | G. & H. Walthers Co., Brookville ----- | 6.9 | 6.0 | 8.3 | 41.0 | 41.2 |
| Lovitt & Company, L. B., Memphis, Tenn. | | | | | | | | |
| Memphis Brand Cottonseed Meal | 6849 | 5385 | Wm. Rouse & Son, Indianapolis | 6.8 | 6.0 | 7.3 | 38.6 | 39.6 |
| Memphis Brand Cottonseed Meal | 6849 | 5428 | W. O. Robinson, Galveston----- | 6.9 | 6.0 | 5.9 | 38.6 | 38.0 |
| Memphis Brand Cottonseed Meal | 6849 | 5570 | J. S. Crawford, Crown Point---- | 7.6 | 6.0 | 6.2 | 38.6 | 38.7 |
| Memphis Brand Cottonseed Meal | 6849 | 5571 | J. S. Crawford, Crown Point---- | 7.8 | 6.0 | 6.2 | 38.6 | 39.6 |
| Memphis Brand Cottonseed Meal | 6849 | 5572 | Wm. Steeb, Crown Point ----- | 7.1 | 6.0 | 6.3 | 38.6 | 41.7 |
| Memphis Brand Cottonseed Meal | 6849 | 5620 | Wm. Lamb, Petersburg ----- | 6.3 | 6.0 | 7.0 | 38.6 | 37.8 |
| Memphis Brand Cottonseed Meal | 6849 | 5793 | (1) Boonville Milling Co., Boonville ----- | 6.5 | 6.0 | 6.6 | 38.6 | 38.8 |
| ††Memphis Brand Cottonseed Meal | 6849 | 5793 | (2) Bert Hart, Boonville ----- | 6.6 | 6.0 | 6.4 | 38.6 | 39.0 |
| Memphis Brand Cottonseed Meal | 6849 | 5990 | T. S. Nugen, Lewisville ----- | 7.6 | 6.0 | 6.4 | 38.6 | 40.2 |
| Memphis Brand Cottonseed Meal ¹⁹³ | 6849 | 6077 | Wm. Rouse & Son, Indianapolis | 6.4 | 6.0 | 6.6 | 38.6 | 37.1 |
| ††Memphis Brand Cottonseed Meal | 6849 | 6092 | Hollett-Winders Grain Co., Arcadia ----- | 7.4 | 6.0 | 6.9 | 38.6 | 41.3 |
| ††Memphis Brand Cottonseed Meal | 6849 | 6093 | Hollett-Winders Grain Co., Arcadia ----- | 6.6 | 6.0 | 7.2 | 38.6 | 38.7 |
| Memphis Brand Cottonseed Meal | 6849 | 6840 | Ohio Valley Seed Co., Evansville | 5.5 | 6.0 | 6.8 | 38.6 | 38.7 |
| Memphis Brand Cottonseed Meal | 6849 | 7924 | Haynes Milling Co., Portland---- | 8.1 | 6.0 | 7.8 | 38.6 | 39.9 |
| Memphis Brand Cottonseed Meal | 6849 | 8165 | G. J. Roth, Boonville ----- | 7.6 | 6.0 | 6.9 | 38.6 | 39.4 |
| *Memphis Brand Cottonseed Meal | ----- | 5593 | E. A. Kitchel, Kitchel ----- | 7.5 | --- | 7.1 | --- | 35.1 |
| ††Lovitt Brand Cottonseed Meal ¹⁹⁴ | 7460 | 8145 | C. F. Catron, Westville ----- | 6.4 | 6.5 | 7.1 | 41.0 | 39.7 |
| Cotton Seed Meal | 7580 | 8205 | Fisher Bros., Evansville ----- | 5.9 | 5.0 | 6.8 | 38.0 | 37.1 |
| Macdonald, J. M., Cincinnati, Ohio | | | | | | | | |
| Kineda Prime Cottonseed Meal | 6761 | 5623 | Terre Haute Cattle Co., Terre Haute ----- | 7.3 | 6.0 | 6.0 | 38.6 | 39.4 |
| Kineda Prime Cottonseed Meal ¹⁹⁵ | 6761 | 5606 | Terre Haute Cattle Co., Terre Haute ----- | 5.8 | 6.0 | 5.9 | 38.6 | 37.1 |
| Kineda Prime Cottonseed Meal | 6761 | 5889 | L. A. Botkin, Parker City ----- | 7.5 | 6.0 | 6.1 | 38.6 | 39.7 |
| Kineda Prime Cottonseed Meal | 6761 | 5890 | H. W. Meeks, Parker City ----- | 6.2 | 6.0 | 5.9 | 38.6 | 40.4 |

* Not tagged

¹⁹⁴ 6 tons removed from sale.

Refund. See page 20

¹⁹⁵ Refund. See page 20

†† Not tagged. Labels furnished
¹⁹³ 12½ tons removed from sale. Refund. See
 page 20

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Maedonald, J. M., Cincinnati, Ohio | | | | | | | | |
| Kineda Prime Cottonseed Meal | 6761 | 6135 | L. A. Botkin, Parker | 8.5 | 6.0 | 6.0 | 38.6 | 38.2 |
| Kineda Prime Cottonseed Meal ¹⁹⁶ | 6761 | 7876 | Sandusky Farmers Elevator Co., Sandusky | 8.2 | 6.0 | 8.7 | 38.6 | 35.7 |
| Avon Cottonseed Meal | 7973 | 5752 | Charlestown Milling Co., Charlestown | 5.7 | 5.0 | 7.4 | 36.0 | 37.7 |
| Avon Cottonseed Meal ¹⁹⁷ | 7973 | 5788 | New Albany Milling Co., New Albany | 6.6 | 5.0 | 7.9 | 36.0 | 35.0 |
| Avon Cottonseed Meal | 7973 | 6024 | John H. Shine & Co., New Albany | 6.2 | 5.0 | 6.0 | 36.0 | 37.4 |
| Montgomery & Company, C. L., Memphis, Tenn. | | | | | | | | |
| Eagle Brand Cotton Seed Meal | 8239 | 5598 | J. H. Leonard, Merom | 7.2 | 6.0 | 7.9 | 38.6 | 39.5 |
| Eagle Brand Cotton Seed Meal | 8239 | 5684 | J. & S. Emison & Co., Vincennes | 6.3 | 6.0 | 6.9 | 38.6 | 37.3 |
| Eagle Brand Cotton Seed Meal | 8239 | 5714 | Stiefel & Levy, Avilla | 7.1 | 6.0 | 7.4 | 38.6 | 39.4 |
| Eagle Brand Cotton Seed Meal | 8239 | 5759 | C. G. Hunger, Madison | 7.1 | 6.0 | 6.8 | 38.6 | 38.9 |
| Eagle Brand Cotton Seed Meal ¹⁹⁸ | 8239 | 6040 | Hartman & Dotterer, Bluffton | 6.5 | 6.0 | 5.5 | 38.6 | 37.6 |
| Eagle Brand Cotton Seed Meal | 8239 | 6152 | John S. Waters, Fort Wayne | 7.7 | 6.0 | 7.4 | 38.6 | 38.9 |
| Eagle Brand Cotton Seed Meal | 8239 | 6476 | McCoy & Garten, Indianapolis | 7.3 | 6.0 | 8.2 | 38.6 | 41.4 |
| Eagle Brand Cotton Seed Meal | 8239 | 6644 | Prater-Mottier Co., Terre Haute | 5.4 | 6.0 | 6.1 | 38.6 | 39.8 |
| Eagle Brand Cotton Seed Meal ¹⁹⁹ | 8239 | 7160 | O. L. Caudle, Salem | 6.3 | 6.0 | 6.9 | 38.6 | 37.6 |
| ††Star Brand Cotton Seed Meal ²⁰⁰ | 8315 | 5753 | M. A. Conroy, Jeffersonville | 7.4 | 6.0 | 6.0 | 39.0 | 34.7 |
| Star Brand Cotton Seed Meal ²⁰¹ | 8315 | 6140 | G. W. Ruff & Son, New Castle | 7.2 | 6.0 | 5.5 | 36.0 | 34.4 |
| Star Brand Cotton Seed Meal | 8315 | 6847 | Ohio Valley Seed Co., Evansville | 6.8 | 6.0 | 7.7 | 36.0 | 37.5 |
| Star Brand Cotton Seed Meal | 8315 | 7989 | W. R. McClanahan, Otisco | 6.6 | 6.0 | 7.1 | 36.0 | 41.0 |
| Star Brand Cotton Seed Meal | 8315 | 8900 | Eby Bros., Wakarusa | 7.1 | 6.0 | 9.6 | 36.0 | 36.2 |
| Star Brand Cotton Seed Meal ²⁰² | 8315 | 8301 | Mervin Eby, Wakarusa | 7.1 | 6.0 | 9.6 | 36.0 | 36.2 |
| McCoy & Garten, Indianapolis, Ind. | | | | | | | | |
| Prime Cotton Seed Meal | 8753 | 7699 | Manufacturers | 7.8 | 6.0 | 7.0 | 38.5 | 38.3 |
| National Feed Company, St. Louis, Mo. | | | | | | | | |
| Prime Cotton Seed Meal | 7934 | 5673 | Goshen Milling Co., Goshen | 6.7 | 6.5 | 6.5 | 38.5 | 39.9 |
| Prime Cotton Seed Meal | 7934 | 5991 | T. S. Nugen, Lewisville | 6.6 | 6.5 | 7.3 | 38.5 | 39.7 |
| Prime Cotton Seed Meal | 7934 | 6181 | J. Brown & Son, Shelby | 7.1 | 6.5 | 5.7 | 38.5 | 41.2 |
| Prime Cotton Seed Meal | 7934 | 6192 | O. G. Fifield, Hebron | 7.2 | 6.5 | 5.8 | 38.5 | 40.7 |
| Prime Cotton Seed Meal | 7934 | 6252 | T. S. Nugen, Lewisville | 6.3 | 6.5 | 7.6 | 38.5 | 39.9 |
| Prime Cotton Seed Meal ²⁰³ | 7934 | 7933 | Hawley Hall, Lewisville | 6.9 | 6.5 | 6.5 | 38.5 | 37.6 |
| Prime Cotton Seed Meal | 8788 | 7932 | T. S. Nugen, Lewisville | 6.6 | 6.0 | 8.3 | 38.5 | 39.9 |
| Prime Cotton Seed Meal | 8788 | 8117 | Crabbs Reynolds Taylor Co., Lafayette | 6.7 | 6.0 | 7.3 | 38.5 | 40.0 |
| National Cotton Seed Meal | 8800 | 8276 | Wm. Steeb, Crown Point | 6.2 | 5.0 | 7.9 | 36.0 | 36.7 |
| Nothorn, W. C., Little Rock, Ark. | | | | | | | | |
| Standard Brand Cotton Seed Meal | 8198 | 5610 | Kraus & Apfelbaum, Fort Wayne | 7.3 | 6.0 | 6.1 | 36.0 | 35.9 |
| Standard Brand Cotton Seed Meal | 8198 | 6148 | Kraus & Apfelbaum, Fort Wayne | 6.8 | 6.0 | 6.2 | 36.0 | 36.7 |
| Pincoffs Company, Maurice, Chicago, Ill. | | | | | | | | |
| Pinco Brand Cottonseed Meal | 8734 | 8049 | Kraus & Apfelbaum, Fort Wayne | 6.1 | 6.0 | 5.4 | 36.0 | 36.4 |
| Poe Cottonseed Products Company, Memphis, Tenn. | | | | | | | | |
| "Golden Rod" Brand A Good Cotton- seed Meal | 8294 | 7076 | J. W. Linkhart & Son, North Vernon | 6.1 | 5.0 | 6.5 | 36.0 | 36.5 |
| "Golden Rod" Brand A Good Cotton- seed Meal | 8294 | 8319 | T. A. Pass, Sellersburg | 6.0 | 5.0 | 6.8 | 36.0 | 36.5 |
| Ralston Purina Company, St. Louis, Mo. | | | | | | | | |
| Protina Cotton Seed Meal | 8158 | 6462 | Ralston Purina Co., Indianapolis | 6.8 | 5.0 | 6.8 | 36.0 | 37.3 |
| Protina Cotton Seed Meal | 8158 | 6632 | Harrison Smith, Terre Haute | 7.4 | 5.0 | 6.3 | 36.0 | 36.2 |

†† Not tagged. Labels furnished

¹⁹⁹ 5 tons removed from sale
¹⁹⁸ 200 lbs. removed from sale. Relabeled with ²⁰⁰ 18 tons returned to Southern Seed Co., Louis-
No. 8570 ville, Ky.¹⁹⁷ 5% tons removed from sale. Refund. See page ²⁰¹ 5 1/10 tons removed from sale²⁰ ²⁰² Composited with D8300¹⁹⁸ 3 tons removed from sale ²⁰³ Refund. See page 20

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Southern Cotton Oil Company, The, Memphis, Tenn. Cotton Seed Meal ----- | 8821 | 8199 | Ohio Valley Seed Co., Evansville | 5.5 | 6.0 | 6.1 | 36.0 | 36.1 |
| Southern Seed Company, Louisville, Ky. Economy Cotton Seed Meal ----- | 8797 | 8392 | F. O. Underhill, Greens Fork---- | 7.0 | 5.0 | 6.8 | 36.0 | 39.0 |
| Texas Cake & Linter Company, Dallas, Texas Sunset Brand Cottonseed Meal and Cracked Cake ----- | 7035 | 5918 | Reed Able, Modoc ----- | 6.2 | 6.0 | 10.3 | 41.0 | 41.0 |
| Sunset Brand Prime Cracked Cotton- seed Cake and Meal ----- | 8598 | 8390 | Hurst & Co., Columbus ----- | 6.4 | 5.0 | 7.0 | 41.0 | 41.7 |
| Union Seed & Fertilizer Company, New York, N. Y. "American Red Tag" Cottonseed Meal | 6210 | 5676 | W. M. Erwin, Inglefield ----- | 6.3 | 7.0 | 6.5 | 38.5 | 40.0 |
| "American Red Tag" Cottonseed Meal | 6210 | 5577 | W. A. Browning Milling Co., Evansville ----- | 5.9 | 7.0 | 6.6 | 38.5 | 40.8 |
| "American Red Tag" Cottonseed Meal | 6210 | 5768 | G. Eberhardt & Son, Dale----- | 6.4 | 7.0 | 6.4 | 38.5 | 38.8 |
| "American Red Tag" Cottonseed Meal | 6210 | 5769 | Wm. Pfaff & Frank Kloster- man, Huntingburg ----- | 6.6 | 7.0 | 6.3 | 38.5 | 39.8 |
| "American Red Tag" Cottonseed Meal | 6210 | 5770 | Wallace Milling Co., Dale----- | 6.1 | 7.0 | 6.2 | 38.5 | 38.4 |
| "American Red Tag" Cottonseed Meal | 6210 | 5811 | Boonville Milling Co., Boonville | 6.6 | 7.0 | 6.6 | 38.5 | 38.2 |
| "American Red Tag" Cottonseed Meal | 6210 | 6775 | The Heldt Co., Evansville----- | 6.5 | 7.0 | 6.7 | 38.5 | 38.7 |
| Security Brand Cottonseed Meal----- | 7993 | 5541 | Union Grain & Feed Co., Anderson ----- | 8.2 | 5.5 | 6.2 | 36.0 | 36.0 |
| Security Brand Cottonseed Meal ²⁰⁴ ---- | 7993 | 5395 | Frank Cooper, Middletown ----- | 8.3 | 5.5 | 7.2 | 36.0 | 32.3 |
| Security Brand Cottonseed Meal----- | 7993 | 5465 | McCoy & Garten, Indianapolis-- | 6.6 | 5.5 | 7.0 | 36.0 | 36.4 |
| Security Brand Cottonseed Meal----- | 7993 | 5526 | Kraus & Apfelbaum, Fort Wayne ----- | 7.6 | 5.5 | 6.2 | 36.0 | 36.9 |
| Security Brand Cottonseed Meal----- | 7993 | 5602 | Union Grain & Feed Co., Anderson ----- | 7.2 | 5.5 | 6.3 | 36.0 | 36.2 |
| Security Brand Cottonseed Meal----- | 7993 | 5636 | Edw. F. Goeke Co., Evansville-- | 6.3 | 5.5 | 7.3 | 36.0 | 37.5 |
| Security Brand Cottonseed Meal ²⁰⁵ ---- | 7993 | 5689 | Prater-Mottier Co., Terre Haute | 6.7 | 5.5 | 6.9 | 36.0 | 35.6 |
| Security Brand Cottonseed Meal----- | 7993 | 5690 | W. C. Hall Milling Co., Brazil-- | 6.1 | 5.5 | 7.0 | 36.0 | 36.4 |
| Security Brand Cottonseed Meal----- | 7993 | 5697 | W. H. Small & Co., Evansville-- | 6.3 | 5.5 | 6.9 | 36.0 | 38.8 |
| Security Brand Cottonseed Meal ²⁰⁶ ---- | 7993 | 5739 | McCoy & Garten, Indianapolis-- | 7.5 | 5.5 | 6.7 | 36.0 | 35.5 |
| Security Brand Cottonseed Meal ²⁰⁷ ---- | 7993 | 5831 | McCoy & Garten, Indianapolis-- | 6.2 | 5.5 | 6.5 | 36.0 | 34.5 |
| Security Brand Cottonseed Meal----- | 7993 | 5838 | Probst & Kassebaum, Indianapolis ----- | 6.5 | 5.5 | 6.8 | 36.0 | 37.3 |
| Security Brand Cottonseed Meal----- | 7993 | 5853 | W. D. Hurn Milling Co., Corydon Junction ----- | 7.6 | 5.5 | 6.8 | 36.0 | 37.1 |
| Security Brand Cottonseed Meal----- | 7993 | 5903 | O. L. Cauble, Salem ----- | 6.9 | 5.5 | 7.6 | 36.0 | 36.5 |
| Security Brand Cottonseed Meal----- | 7993 | 5905 | C. H. Ellis, Muncie ----- | 7.6 | 5.5 | 6.4 | 36.0 | 37.3 |
| Security Brand Cottonseed Meal----- | 7993 | 5949 | W. L. Skinner Grain Co., Dunkirk ----- | 7.8 | 5.5 | 7.1 | 36.0 | 37.7 |
| Security Brand Cottonseed Meal----- | 7993 | 5963 | McCoy & Garten, Indianapolis-- | 6.0 | 5.5 | 6.8 | 36.0 | 37.7 |
| Security Brand Cottonseed Meal----- | 7993 | 6310 | Union Grain & Feed Co., Anderson ----- | 6.8 | 5.5 | 7.1 | 36.0 | 39.2 |
| Security Brand Cottonseed Meal----- | 7993 | 7126 | J. W. McMillen & Son, Fort Wayne ----- | 7.9 | 5.5 | 7.2 | 36.0 | 38.1 |
| †† Surety Brand Cotton Seed Meal----- | 8264 | 5596 | E. E. Ray, Sullivan ----- | 7.5 | 5.5 | 6.8 | 36.0 | 36.9 |
| †† Surety Brand Cotton Seed Meal----- | 8264 | 5600 | Joseph A. Crawford, Sullivan-- | 8.0 | 5.5 | 6.2 | 36.0 | 36.9 |
| †† Surety Brand Cotton Seed Meal----- | 8264 | 5601 | Joseph A. Crawford, Sullivan-- | 7.0 | 5.5 | 7.1 | 36.0 | 36.1 |
| Surety Brand Cotton Seed Meal----- | 8264 | 6003 | Ernest Spillers, Ridgeville ----- | 7.8 | 5.5 | 7.1 | 36.0 | 37.2 |
| Surety Brand Cotton Seed Meal----- | 8264 | 6536 | Wakarusa Milling Co., Wakarusa ----- | 8.4 | 5.5 | 6.2 | 36.0 | 35.0 |
| Surety Brand Cotton Seed Meal----- | 8264 | 6776 | The Heldt Co., Evansville ----- | 9.0 | 5.5 | 6.8 | 36.0 | 37.6 |
| Surety Brand Cotton Seed Meal----- | 8264 | 6812 | W. H. Small & Co., Evansville-- | 7.0 | 5.5 | 7.0 | 36.0 | 36.0 |
| Surety Brand Cotton Seed Meal----- | 8264 | 7641 | Probst & Kassebaum, Indianapolis ----- | 6.9 | 5.5 | 6.5 | 36.0 | 35.8 |
| Surety Brand Cottonseed Meal ²⁰⁸ ---- | 8264 | 7839 | Fisher Bros., Evansville ----- | 7.4 | 5.5 | 6.3 | 36.0 | 34.9 |
| Surety Brand Cotton Seed Meal----- | 8264 | 7963 | Studebaker Grain & Seed Co., Bluffton ----- | 7.9 | 5.5 | 6.3 | 36.0 | 35.8 |
| Surety Brand Cotton Seed Meal----- | 8264 | 8025 | Probst & Kassebaum, Indianapolis ----- | 7.4 | 5.5 | 6.6 | 36.0 | 35.6 |
| Surety Brand Cotton Seed Meal----- | 8264 | 8182 | Kraus & Apfelbaum, Fort Wayne ----- | 7.2 | 5.5 | 7.4 | 36.0 | 36.9 |

†† Not tagged. Labels furnished

²⁰⁴ Refund. See page 20²⁰⁵ Refund. See page 20²⁰⁶ Refund. See page 20²⁰⁷ 20 tons removed from sale. Returned to mfr.²⁰⁸ Refund. See page 20

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| Union Seed & Fertilizer Company, New York, N. Y. | | | | | | | | |
| *Surety Brand Cotton Seed Meal..... | 8194 | | Star Mill Co., Huntingburg..... | 7.4 | --- | 6.7 | --- | 36.9 |
| Surety Brand Cotton Seed Meal..... | 8264 | 8204 | Edw. F. Goeke Co., Evansville.. | 7.2 | 5.5 | 7.7 | 33.0 | 37.5 |
| Surety Brand Cotton Seed Meal..... | 8264 | 8248 | R. C. McNaughton, Ray..... | 7.0 | 5.5 | 6.7 | 36.0 | 37.7 |
| Surety Brand Cotton Seed Meal..... | 8264 | 8260 | Union Grain & Feed Co., Anderson..... | 8.1 | 5.5 | 7.3 | 33.0 | 37.0 |
| Surety Brand Cotton Seed Meal..... | 8264 | 8264 | T. I. Ferris, Pleasant Lake..... | 7.5 | 5.5 | 7.2 | 36.0 | 33.4 |
| Surety Brand Cotton Seed Meal..... | 8264 | 8265 | T. I. Ferris, Pleasant Lake..... | 6.6 | 5.5 | 8.1 | 36.0 | 37.6 |
| Wagner-White Company, Inc., Jackson, Mich. | | | | | | | | |
| ††Waw-Co Brand Cottonseed Meal..... | 8927 | 8245 | Fremont Co-operative Assoc., Fremont..... | 6.7 | 5.0 | 6.1 | 36.0 | 37.6 |
| Walsh & Company, James, Lawrenceburg, Ind. | | | | | | | | |
| Cotton Seed Meal..... | 8812 | 7678 | John Crum, Milan..... | 7.8 | 8.0 | 8.3 | 38.6 | 41.7 |
| COLD PRESSED COTTONSEED | | | | | | | | |
| Mississippi Delta Planting Company, Scott, Miss. | | | | | | | | |
| Acme Brand Cold Pressed Cottonseed.. | 6125 | 5646 | D. D. Skiles, Rossville..... | 6.4 | 7.0 | 11.7 | 23.0 | 28.7 |
| Acme Brand Cold Pressed Cottonseed.. | 6125 | 5709 | Chas. W. Campbell, Waveland.. | 6.7 | 7.0 | 10.7 | 23.0 | 29.9 |
| Acme Brand Cold Pressed Cottonseed.. | 6125 | 8045 | C. P. Moody, Moody..... | 7.0 | 7.0 | 8.9 | 23.0 | 24.0 |
| BREWERS' DRIED GRAINS | | | | | | | | |
| Edinger & Company, Louisville, Ky. | | | | | | | | |
| Arrow Brewers Grains..... | 8036 | 5874 | Scottsburg Milling Co., Scottsburg..... | 6.6 | 5.0 | 6.5 | 25.0 | 26.8 |
| Evansville Dried Malt & Feed Company, Evansville, Ind. | | | | | | | | |
| ††Dried Brewers Grains..... | 6384 | 5624 | Ballard & Magenheimer, Haubstadt..... | 6.7 | 5.0 | 7.1 | 24.0 | 26.9 |
| Dried Brewers Grains..... | 6384 | 5659 | Manufacturers..... | 4.9 | 5.0 | 6.9 | 24.0 | 32.8 |
| Dried Brewers Grains..... | 6384 | 5859 | English Milling Co., English.. | 4.8 | 5.0 | 7.1 | 24.0 | 30.6 |
| Dried Brewers Grains..... | 6384 | 6809 | Manufacturers..... | 6.6 | 5.0 | 7.2 | 24.0 | 27.6 |
| Dried Brewers Grains..... | 6384 | 7822 | W. H. Small & Co., Evansville.. | 5.6 | 5.0 | 6.6 | 24.0 | 30.0 |
| Fruechtenicht, Henry, Louisville, Ky. | | | | | | | | |
| Blue Grass Dried Brewers Grains..... | 8577 | 7992 | M. A. Conroy, Jeffersonville.... | 5.2 | 6.0 | 7.3 | 26.0 | 28.1 |
| Jones Company, J. H., Louisville, Ky. | | | | | | | | |
| Big J. Brewers Dried Grains..... | 7724 | 6268 | New Albany Milling Co., New Albany..... | 5.8 | 5.0 | 7.1 | 25.0 | 28.3 |
| Muessel Brewing Company, The, South Bend, Ind. | | | | | | | | |
| Muessel's Dried Brewers Grains..... | 5292 | 7540 | J. C. Barrett, South Bend..... | 7.3 | 6.1 | 7.5 | 24.0 | 26.4 |
| Niemond, K. & E., Inc., St. Louis, Mo. | | | | | | | | |
| "Goldnes Kalb" Dried Brewers Grains | 7132 | 6013 | Lingeman, Adams & Co., Brownsville..... | 8.2 | 6.0 | 7.7 | 24.0 | 30.1 |
| *Brewers Grains..... | --- | 5651 | National Military Home, Marion | 6.1 | --- | 6.3 | --- | 26.8 |
| Rankin & Company, M. G. Milwaukee, Wis. | | | | | | | | |
| (Durham) Dried Brewers Grains..... | 8682 | 7354 | McCoy & Garten, Indianapolis.. | 6.2 | 6.0 | 7.2 | 26.0 | 31.8 |
| Scottsburg Elevator, Scottsburg, Ind. | | | | | | | | |
| Brewers Dried Grains..... | 8449 | 8286 | Manufacturers..... | 5.3 | 6.0 | 5.5 | 24.0 | 24.4 |
| DISTILLERS' DRIED GRAINS | | | | | | | | |
| American Milling Company, Peoria, Ill. | | | | | | | | |
| Empire State Dairy Feed..... | 8014 | 5909 | J. H. Williamson Co., Muncie.. | 4.4 | 8.0 | 12.2 | 30.0 | 32.3 |
| Empire State Dairy Feed..... | 8014 | 7026 | J. H. Williamson Co., Muncie.. | 6.8 | 8.0 | 10.8 | 30.0 | 34.2 |

* Not tagged

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|------------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection ID | | | Guar- anteed | Found | Guar- anteed | Found |
| Atlas Feed & Milling Co., Peoria, Ill. | | | | | | | | |
| Atlas Distillers Grains ²⁰⁹ ----- | 7728 | 5344 | Jay Grain Co., Mulberry----- | 3.2 | 11.0 | 8.0 | 30.0 | 32.0 |
| Atlas Distillers Grains ²¹⁰ ----- | 7728 | 5437 | John L. Sample, Madison----- | 7.3 | 11.0 | 7.8 | 30.0 | 35.3 |
| Atlas Distillers Grains----- | 7728 | 5650 | National Military Home, Marion | 4.6 | 11.0 | 12.6 | 30.0 | 31.0 |
| Atlas Distillers Grains----- | 7728 | 5782 | J. Gienger & Co., Jeffersonville | 7.9 | 11.0 | 7.1 | 30.0 | 36.0 |
| Atlas Distillers Grains ²¹¹ ----- | 7728 | 5819 | Louis Hartman & Sons, New Albany----- | 8.1 | 11.0 | 6.6 | 30.0 | 33.1 |
| Atlas Distillers Grains----- | 8303 | 6017 | Edgar Logan & Harry Greene, Goshen----- | 3.7 | 6.0 | 8.2 | 30.0 | 31.9 |
| Conroy, M. A., Jeffersonville, Ind. | | | | | | | | |
| Sunny Brook Distillers Dried Grains-- | 8308 | 5750 | Manufacturers----- | 5.4 | 7.0 | 7.4 | 29.0 | 27.2 |
| Sunny Brook Distillers Dried Grains-- | 8308 | 5864 | Scottsburg Elevator Co., Scottsburg----- | 5.7 | 7.0 | 9.8 | 29.0 | 34.9 |
| Dewey Bros. Company, The, Blanchester, Ohio | | | | | | | | |
| Eagle Three D. Grains----- | 3503 | 5810 | Boonville Milling Co., Boonville | 7.0 | 10.0 | 9.8 | 30.0 | 32.2 |
| ††Eagle Three D. Grains----- | 3503 | 7157 | Fountain Produce Co., Veedersburg----- | 9.0 | 10.0 | 11.4 | 30.0 | 30.1 |
| Edinger & Company, Louisville, Ky. | | | | | | | | |
| Arrow Distillers Dried Grains----- | 8035 | 5834 | C. H. Ashworth, Crandall----- | 6.7 | 10.0 | 10.4 | 30.0 | 31.4 |
| Interstate Feed Association, Detroit, Mich. | | | | | | | | |
| Interstate Dairy & Hog Feed----- | 7719 | 8100 | Kinsey Bros., North Manchester | 6.3 | 7.0 | 5.0 | 15.0 | 15.8 |
| Jordan, Geo. M., Vincennes, Ind. | | | | | | | | |
| G. M. J. Distillers Dried Grains----- | 7511 | 7222 | Manufacturer----- | 11.2 | 10.0 | 10.6 | 30.0 | 27.9 |
| Kentucky Distillers & Brewers Dried Grain Company, Louisville, Ky. | | | | | | | | |
| Distillers Dried Grains----- | 7984 | 5812 | J. W. Wilkinson, Boonville----- | 7.2 | 10.0 | 10.1 | 30.0 | 31.4 |
| McCoy & Garten, Indianapolis, Ind. | | | | | | | | |
| Distillers Corn Grains----- | 8025 | 5544 | Dick Hinton, Bloomington----- | 3.8 | 8.0 | 13.1 | 30.0 | 32.7 |
| Mueller, E. P., Chicago, Ill. | | | | | | | | |
| M. V. C. O. Dried Grains----- | 8631 | 7371 | H. Pope, Valparaiso----- | 7.6 | 5.0 | 9.3 | 21.0 | 20.4 |
| Murphy Distilling Company, Vincennes, Ind. | | | | | | | | |
| Distillers Dried Grains----- | 8082 | 7212 | Manufacturers----- | 6.1 | 9.0 | 14.7 | 26.0 | 31.7 |
| Old Vincennes Distilling Company, Vincennes, Ind. | | | | | | | | |
| O. V. D. Dried Grains----- | 8030 | 7211 | Manufacturers----- | 8.0 | 10.0 | 12.9 | 30.0 | 30.4 |
| Semans Edible Oils Company, Indianapolis, Ind. | | | | | | | | |
| ††Corn Distillers Dried Grains (Jersey Brand)----- | 8420 | 6583 | Arthur Turley, Orleans----- | 6.4 | 10.0 | 11.5 | 30.0 | 34.2 |
| Squibb Company, W. P., Lawrenceburg, Ind. | | | | | | | | |
| Squibbs Distillery Dried Grains----- | 7950 | 5409 | Milan Mill & Elevator, Milan--- | 5.0 | 9.0 | 11.1 | 30.0 | 33.6 |
| Squibbs Distillery Dried Grains----- | 7950 | 7061 | Milan Mill & Elevator, Milan--- | 7.4 | 9.0 | 9.7 | 30.0 | 34.0 |
| Walsh & Company, James, Lawrenceburg, Ind. | | | | | | | | |
| Walden Dried Grains----- | 8069 | 5393 | W. D. Wilson, Osgood----- | 6.2 | 11.5 | 12.2 | 28.5 | 33.0 |
| Walden Dried Grains----- | 8069 | 6274 | John H. Shine & Co., New Albany----- | 7.3 | 11.5 | 12.2 | 28.5 | 32.8 |
| Walden Dried Grains----- | 8069 | 6439 | Farmers Elevator Co., Jamestown----- | 9.3 | 11.5 | 11.7 | 28.5 | 30.6 |
| Walden Dried Grains----- | 8069 | 6581 | Bloomington Milling Co., Bloomington----- | 7.0 | 11.5 | 12.3 | 28.5 | 33.5 |
| Walden Dried Grains----- | 8069 | 7444 | Chas. Jenkins, Georgetown----- | 7.6 | 11.5 | 11.0 | 28.5 | 31.4 |

†† Not tagged. Labels furnished
²⁰⁹ 1300 lbs. removed from sale. Relabeled
 No. 8303

²¹⁰ 3 13 ²⁰/₂₀ tons removed from sale
²¹¹ 1 1/2 tons removed from sale. Relabeled No. 8303

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| YEAST GRAINS | | | | | | | | |
| Mueller, Edw. P., Chicago, Ill. Fleischman's Dried Grains ----- | 7762 | 5569 | Luebecke Bros., Crown Point---- | 7.9 | 7.0 | 6.7 | 19.0 | 19.2 |
| LINSEED MEAL | | | | | | | | |
| American Linseed Company, New York, N. Y. | | | | | | | | |
| Old Process Linseed Oil Meal----- | 4859 | 5005 | O. E. Nichols & Co., Lowell---- | 8.8 | 6.0 | 6.8 | 34.0 | 36.0 |
| Old Process Linseed Oil Meal----- | 4859 | 5626 | Bur Porter, Remington ----- | 7.4 | 6.0 | 8.7 | 34.0 | 35.1 |
| Old Process Linseed Oil Meal----- | 4859 | 6459 | August Hoffman, Indianapolis---- | 7.7 | 6.0 | 6.5 | 34.0 | 34.9 |
| Old Process Linseed Oil Meal----- | 4859 | 7353 | McCoy & Garten, Indianapolis---- | 8.6 | 6.0 | 6.5 | 34.0 | 34.0 |
| Archer Daniels Linseed Company, Minneapolis, Minn. | | | | | | | | |
| Old Process Ground Linseed Cake---- | 1834 | 7285 | J. C. Barrett, South Bend----- | 7.5 | 6.0 | 6.9 | 32.0 | 34.6 |
| Old Process Ground Linseed Cake---- | 1834 | 7560 | Przybysz Flour & Feed Co., South Bend ----- | 9.3 | 6.0 | 6.5 | 32.0 | 33.8 |
| Old Process Ground Linseed Cake---- | 1834 | 7920 | Omer G. Whelan, Richmond ---- | 7.6 | 6.0 | 6.7 | 32.0 | 36.0 |
| Badenoch Company, J. J., Chicago, Ill. ††Old Process Oil Meal ²¹² ----- | 8763 | 7567 | Cash Flour & Feed Co., South Bend ----- | 9.2 | 6.0 | 6.8 | 30.0 | 27.7 |
| Chicago Heights Oil Mfg. Company, Chicago, Ill. | | | | | | | | |
| Old Process Oil Meal----- | 6351 | 5400 | Watkins & Cripe, Lincoln ----- | 7.8 | 6.0 | 6.3 | 32.0 | 36.3 |
| Old Process Oil Meal----- | 6351 | 5003 | L. Keilman Co., Dyer ----- | 8.8 | 6.0 | 6.5 | 32.0 | 35.0 |
| Old Process Oil Meal----- | 6351 | 5707 | Sam Milligen, Jr., Waveland----- | 7.5 | 6.0 | 6.1 | 32.0 | 36.8 |
| Old Process Oil Meal----- | 6351 | 5936 | Earl Mummert, Flora ----- | 8.3 | 6.0 | 6.4 | 32.0 | 36.2 |
| Old Process Oil Meal----- | 6351 | 7299 | Middlebury Grain Co., Middlebury ----- | 8.5 | 6.0 | 8.7 | 32.0 | 35.5 |
| Old Process Oil Meal----- | 6351 | 8038 | New Albany Milling Co., New Albany ----- | 7.5 | 6.0 | 7.6 | 32.0 | 37.2 |
| Dickinson Company, The Albert Chicago, Ill. | | | | | | | | |
| Dickinson's Linseed Meal ----- | 6404 | 5923 | H. E. Pitman, Bedford ----- | 7.4 | 5.0 | 6.5 | 32.0 | 36.0 |
| Dickinson's Linseed Meal ----- | 6404 | 7257 | Wesley Miller Flour & Feed Co., South Bend ----- | 7.9 | 5.0 | 8.1 | 32.0 | 33.3 |
| Hirst & Begley Linseed Company, Chicago, Ill. | | | | | | | | |
| ††Hirst & Begley Linseed Co., Brand Linseed Meal ----- | 7165 | 6043 | Hartman & Dotterer, Bluffton---- | 7.9 | 6.0 | 7.1 | 34.0 | 33.8 |
| ††Hirst & Begley Linseed Co., Brand Linseed Meal ----- | 7165 | 6486 | McCoy & Garten, Indianapolis---- | 9.1 | 6.0 | 6.7 | 34.0 | 34.6 |
| ††Hirst & Begley Linseed Co., Brand Linseed Meal ----- | 7165 | 7087 | G. L. Watson Grain Co., Redkey---- | 8.9 | 6.0 | 8.0 | 34.0 | 35.4 |
| Hirst & Begley Linseed Co., Brand Linseed Meal ----- | 7165 | 7321 | Loughry Bros. Milling & Grain Co., Monticello ----- | 8.0 | 6.0 | 7.2 | 34.0 | 34.3 |
| Kellogg & Sons, Inc., Spencer, Buffalo, N. Y. | | | | | | | | |
| ††Old Process Oil Meal----- | 5877 | 6273 | John H. Shine & Co., New Albany ----- | 7.1 | 5.0 | 6.1 | 33.0 | 36.9 |
| Old Process Oil Meal----- | 5877 | 6771 | Edw. F. Goeke Co., Evansville---- | 7.4 | 5.0 | 5.7 | 33.0 | 36.3 |
| Old Process Oil Meal----- | 5877 | 7122 | Hurst & Co., Columbus ----- | 7.7 | 5.0 | 5.2 | 33.0 | 35.3 |
| Metzger Seed & Oil Company, The, Toledo, Ohio | | | | | | | | |
| Old Process Oil Meal----- | 6672 | 7950 | Richmond Roller Mills, Richmond ----- | 8.5 | 5.0 | 7.5 | 30.0 | 33.8 |
| Midland Linseed Products Company, Minneapolis, Minn. | | | | | | | | |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 5355 | H. A. Crossland, Indianapolis---- | 8.4 | 5.5 | 7.8 | 32.0 | 35.3 |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 5367 | H. A. Crossland, Indianapolis---- | 8.5 | 5.5 | 6.8 | 32.0 | 36.4 |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 5609 | Brook Flour & Feed Mill, Brook---- | 8.6 | 5.5 | 7.4 | 32.0 | 35.9 |

†† Not tagged. Labels furnished

²¹² Flaxseed screenings oil feed present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|--|----------|------------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection ID | | | Guar- anteed | Found | Guar- anteed | Found |
| Midland Linseed Products Company, Minneapolis, Minn. | | | | | | | | |
| ††Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 5612 | McCray Grain Co., Kentland---- | 9.9 | 5.5 | 6.8 | 32.0 | 36.3 |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 5649 | National Military Home, Marion | 8.6 | 5.5 | 8.2 | 32.0 | 36.0 |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 5681 | D. L. Trout, Lee ----- | 8.9 | 5.5 | 7.2 | 32.0 | 36.9 |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 5981 | Brook Flour & Feed Mill, Brook | 9.4 | 5.5 | 7.5 | 32.0 | 36.5 |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 5936 | J. J. Lawler, Pogue ----- | 9.6 | 5.5 | 8.0 | 32.0 | 36.0 |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 6449 | H. A. Crossland & Co., Indianapolis ----- | 7.8 | 5.5 | 6.7 | 32.0 | 34.7 |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 6463 | H. A. Crossland & Co., Indianapolis ----- | 8.5 | 5.5 | 6.7 | 32.0 | 35.0 |
| ††Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 7251 | Standard Hay & Grain Co., Terre Haute ----- | 7.2 | 5.5 | 9.3 | 32.0 | 34.8 |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 5367 | 7379 | Thomas Milling Co., Marion---- | 8.3 | 5.5 | 7.6 | 32.0 | 33.3 |
| Midland Brand Pure Old Process Ground Linseed Cake ²¹³ ----- | 5367 | 7471 | Co-operative Elevator Co., Winamac ----- | 8.5 | 5.5 | 6.6 | 32.0 | 31.9 |
| Midland Brand Pure Old Process Ground Linseed Cake----- | 8570 | 7905 | H. A. Gaddis, Modoc ----- | 8.8 | 5.0 | 8.1 | 32.0 | 36.6 |
| *Old Process Ground Linseed Cake----- | | 7209 | D. R. Rumble, Berne ----- | 8.0 | --- | 7.8 | --- | 34.7 |
| Minnesota Linseed Oil Company, Minneapolis, Minn. | | | | | | | | |
| Ground Oil Cake or Oil Meal----- | 5405 | 6519 | Goshen Milling Co., Goshen ---- | 8.9 | 5.0 | 6.0 | 34.0 | 36.9 |
| Sherwin-Williams Company, The, Cleveland, Ohio. | | | | | | | | |
| S. W. C. Linseed Meal ----- | 1723 | 5872 | Geo. Bollinger, Henryville ----- | 7.9 | 6.0 | 6.2 | 33.0 | 36.3 |
| Toledo Seed & Oil Company, The, Toledo, Ohio | | | | | | | | |
| Major Brand Old Process Oil Meal--- | 5546 | 5731 | Goodrich Bros. Hay & Grain Co., Westfield ----- | 8.0 | 5.0 | 6.4 | 30.0 | 33.8 |
| Major Brand Old Process Oil Meal--- | 8713 | 7440 | Studebaker Grain & Seed Co., Bluffton ----- | 9.0 | 6.0 | 6.5 | 33.0 | 34.1 |
| Major Brand Old Process Oil Meal--- | 8713 | 7576 | Union Grain & Feed Co., Anderson ----- | 8.4 | 6.0 | 6.2 | 33.0 | 34.6 |
| Major Brand Old Process Oil Meal--- | 8713 | 8069 | S. F. Trembley Co., Columbia City ----- | 9.8 | 6.0 | 5.8 | 33.0 | 34.1 |
| LINSEED MEAL AND FLAXSEED SCREENINGS | | | | | | | | |
| American Milling Company, Peoria, Ill. | | | | | | | | |
| Amco Old Process Linseed Meal and Old Process Flax Screenings Oil Feed ----- | 8169 | 5638 | Edw. F. Goeke Co., Evansville.. | 9.0 | 5.0 | 6.9 | 30.0 | 31.2 |
| Amco Old Process Linseed Meal and Old Process Flax Screenings Oil Feed ----- | 8169 | 5843 | Thomas & Hickman, Corydon-- | 10.1 | 5.0 | 6.8 | 30.0 | 30.0 |
| Amco Old Process Linseed Oil Meal and Screenings Oil Feed ----- | 8378 | 7819 | Ohio Valley Seed Co., Evansville | 7.9 | 5.0 | 7.1 | 30.0 | 31.7 |
| UNSCREENED FLAXSEED OIL FEED | | | | | | | | |
| Laxo Cake Meal Company, The Chicago, Ill. | | | | | | | | |
| Old Process Laxo Cake Meal----- | 4618 | 6484 | Wm. Rouse & Sons, Indianapolis ----- | 8.1 | 6.0 | 9.1 | 25.0 | 25.6 |
| Old Process Laxo Cake Meal----- | 4618 | 7691 | Wm. Rouse & Son, Indianapolis | 7.6 | 6.0 | 9.2 | 25.0 | 26.7 |

* Not tagged

†† Not tagged. Labels furnished

²¹³ 309 lbs. removed from sale. A palm nut meal
present

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918
(continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | |
|---|----------|-----------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|
| | Official | Inspection D | | | Guar- anteed | Found | Guar- anteed | Found |
| WHEAT MIDLINGS, PALM OIL | | | | | | | | |
| Newsome Feed & Grain Company, The, Pittsburgh, Pa. | | | | | | | | |
| Palmo Midds ----- | 6911 | 5454 | Early & Daniel Co., Aurora---- | 6.0 | 6.0 | 7.2 | 16.0 | 16.5 |
| Palmo Midds ----- | 6911 | 5733 | Branch Grain & Seed Co., Martinsville ----- | 3.7 | 6.0 | 8.6 | 16.0 | 16.5 |
| Palmo Midds ----- | 6911 | 5734 | Branch Grain & Seed Co., Martinsville ----- | 3.1 | 6.0 | 9.7 | 16.0 | 16.5 |
| Palmo Midds ----- | 6911 | 6318 | John G. Donovan & Son, Yorktown ----- | 5.6 | 6.0 | 8.9 | 16.0 | 17.1 |
| Palmo Midds ----- | 6911 | 7012 | Pierce Elevator Co., Union City | 6.9 | 6.0 | 9.3 | 16.0 | 16.1 |
| Palmo Midds ----- | 6911 | 7343 | Union Hardware Co., Lebanon | 7.0 | 6.0 | 8.1 | 16.0 | 16.2 |
| Palmo Midds ----- | 6911 | 7355 | McCoy & Garten, Indianapolis | 5.6 | 6.0 | 7.9 | 16.0 | 16.3 |
| *Palmo Midds ----- | --- | 7423 | New Castle Elevator Co., New Castle ----- | 6.1 | --- | 8.4 | --- | 16.9 |
| Palmo Midds ²¹⁴ ----- | 6911 | 7485 | B. I. Holser & Co., Walkerton-- | 5.9 | 6.0 | 10.4 | 16.0 | 16.2 |
| Palmo Midds ----- | 6911 | 7491 | Davis Grain Co., Clarks Hill-- | 6.2 | 6.0 | 7.9 | 16.0 | 17.2 |
| *Palmo Midds ----- | --- | 7586 | Purdue University, West Lafayette ----- | 5.4 | --- | 10.1 | --- | 16.2 |
| *Palmo Midds ----- | --- | 7655 | Forest R. Miller, Mulberry ----- | 3.8 | --- | 10.2 | --- | 16.0 |
| †Palmo Midds ----- | 6911 | 7656 | Allan & Kluth, Mulberry ----- | 3.5 | 6.0 | 8.1 | 16.0 | 16.4 |
| Palmo Midds ----- | 6911 | 7767 | Judson Creamery & Produce Co., North Judson ----- | 4.4 | 6.0 | 9.7 | 16.0 | 17.5 |
| Palmo Midds ----- | 6911 | 7768 | Judson Creamery & Produce Co., North Judson ----- | 5.1 | 6.0 | 9.9 | 16.0 | 17.4 |
| Palmo Midds ----- | 6911 | 7830 | B. I. Holser & Co., Walkerton-- | 6.0 | 6.0 | 9.9 | 16.0 | 16.1 |
| Palmo Midds ----- | 6911 | 7898 | Anderson & Hollingsworth, Economy ----- | 5.4 | 6.0 | 8.1 | 16.0 | 16.5 |
| *Palmo Midds ----- | --- | 7907 | Newsome Feed & Grain Co., Williamsburg ----- | 6.1 | --- | 8.3 | --- | 17.0 |
| Palmo Midds ----- | 6911 | 7908 | F. C. Williams, Fountain City-- | 6.7 | 6.0 | 10.7 | 16.0 | 15.7 |
| Palmo Midds ----- | 6911 | 7934 | Lines & Boyd, Dunreith ----- | 6.4 | 6.0 | 7.2 | 16.0 | 16.2 |
| Palmo Midds ----- | 6911 | 7942 | Anderson & Sons Grain Co., Milton ----- | 7.4 | 6.0 | 5.3 | 16.0 | 16.8 |
| Palmo Midds ----- | 6911 | 8017 | McCoy & Garten, Indianapolis | 5.0 | 6.0 | 6.8 | 16.0 | 17.2 |
| Palmo Midds ²¹⁵ ----- | 6911 | 8018 | McCoy & Garten, Indianapolis | 4.2 | 6.0 | 9.7 | 16.0 | 17.5 |
| Palmo Midds ----- | 6911 | 8019 | McCoy & Garten, Indianapolis | 4.4 | 6.0 | 7.1 | 16.0 | 17.4 |
| Palmo Midds ----- | 6911 | 8020 | McCoy & Garten, Indianapolis | 4.6 | 6.0 | 8.2 | 16.0 | 17.3 |
| Palmo Midds ----- | 6911 | 8099 | Kinsey Bros., North Manchester | 6.3 | 6.0 | 10.1 | 16.0 | 15.4 |
| Palmo Midds ----- | 6911 | 8228 | Steward Lumber & Grain Co., Spencerville ----- | 5.1 | 6.0 | 7.1 | 16.0 | 16.9 |
| ††Palmo Midds ----- | 6911 | 8375 | Brown & Leach, Fairmount---- | 4.2 | 6.0 | 7.6 | 16.0 | 16.7 |
| PEANUT FEED, PALM OIL | | | | | | | | |
| *Palmo Meal ²¹⁶ ----- | --- | 7309 | Geo. L. Etter, North Vernon---- | 6.7 | --- | 7.1 | --- | 6.9 |
| *Palmo Meal ²¹⁶ ----- | --- | 7310 | Frank Etter, North Vernon---- | 6.9 | --- | 6.6 | --- | 7.1 |
| *Palmo Meal ²¹⁶ ----- | --- | 7311 | W. M. Richardson, North Vernon ----- | 7.5 | --- | 6.7 | --- | 6.8 |

* Not tagged

†† Not tagged. Labels furnished

²¹⁴ Adulterated with peanut hulls. All sold²¹⁵ Conflicting guarantees²¹⁶ Manufacturer could not be ascertained

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918

| Label | Number | Inspection D Official | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|--------|-----------------------------|--|-----------------------|---------------------------|-------|-------------------------------|-------|---|
| | | | | | Guar- anteed | Found | Guar- anteed | Found | |
| PROPRIETARY FEEDS | | | | | | | | | |
| Acme-Evans Company, Indianapolis, Ind. | | | | | | | | | |
| Acme Horse & Mule Feed | 5635 | 7288 | Acme-Evans Co., South Bend | 9.5 | 4.0 | 4.1 | 10.0 | 8.6 | Cracked corn, rolled oats, salt |
| E-Z Dairy Feed | 6683 | 6920 | Thorntown Grain Co., Thorntown | 8.9 | 3.5 | 4.1 | 16.0 | 13.6 | Ground corn, wheat bran, middlings, cot- tonseed meal, probably hominy feed, brew- ers' grains, linseed meal, oat hulls, 0.3% |
| E-Z Dairy Feed | 6983 | 7141 | Brewer Co., Spencer | 8.5 | 3.5 | 4.9 | 16.0 | 13.0 | Same as D 6020. Salt not determined |
| E-Z Dairy Feed | 6983 | 8362 | Marengo Milling Co., Marengo | 7.3 | 3.5 | 3.8 | 16.0 | 14.6 | Same as D 6020. Salt not determined |
| Acme Molasses Grain Feed | 6867 | 6428 | Koerner Bros., Indianapolis | 15.1 | 2.0 | 2.1 | 9.0 | 11.1 | Cracked corn, oats, alfalfa, molasses |
| Acme Molasses Grain Feed | 6867 | 7081 | North Madison Coal Co., North Madison | 16.3 | 2.0 | 2.0 | 9.0 | 12.9 | Same as D 6428 |
| Acme Dairy Feed | 7318 | 7270 | Acme-Evans Co., South Bend | 9.4 | 6.0 | 4.9 | 20.0 | 17.2 | Probably brewers' grains, cottonseed meal, wheat middlings, corn feed meal, wheat bran, linseed meal, hominy feed, salt |
| Allan. J. P., Farmersburg, Ind. | | | | | | | | | Wheat bran, hominy feed, oats |
| J. P. Allans Mixed Feed | 2802 | 7233 | Manufacturer | 8.3 | 4.0 | 6.8 | 9.5 | 13.3 | |
| American Hominy Company, Indianapolis, Ind. | | | | | | | | | |
| ††Homco Superior Horse Feed | 6566 | 7124 | James C. Alleger, Fort Wayne | 14.9 | 2.9 | 3.3 | 8.0 | 10.3 | Cracked corn, oats, alfalfa, molasses |
| Homco Horse Feed | 6567 | 5471 | Richards & Lawson, Shelbyville | 13.7 | 2.5 | 2.6 | 8.0 | 11.3 | Corn, rolled oats, alfalfa, molasses |
| Homco Horse Feed | 6567 | 6983 | Richards & Lawson, Shelbyville | 14.3 | 2.5 | 2.4 | 8.0 | 10.9 | Same as D 5471 |
| Hexite Horse Feed | 8490 | 6848 | Chas. L. Stocker, Evansville | 14.5 | 1.5 | 2.8 | 10.0 | 10.7 | Cracked corn, rolled oats, alfalfa, molasses |
| Homco Jr. Horse Feed | 8510 | 6631 | C. F. Carter, Terre Haute | 15.2 | 2.5 | 3.2 | 10.0 | 10.0 | Ground corn, rolled oats, alfalfa meal, molasses |
| Homco Jr. Horse Feed | 8510 | 7455 | Bloomington Milling Co., Bloomington | 12.5 | 2.5 | 2.5 | 10.0 | 11.4 | Same as D 6631 |
| Homco Horse Feed | 8537 | 6030 | C. F. Carter, Terre Haute | 13.1 | 2.5 | 2.6 | 10.0 | 11.9 | Same as D 6631 |
| Homco Horse Feed | 8537 | 7083 | Chas. W. Jessup, Madison | 14.7 | 2.5 | 3.0 | 10.0 | 10.3 | Same as D 6631 |
| ††Homco Horse Feed | 8537 | 7229 | John H. Wright, Clinton | 12.4 | 2.5 | 3.0 | 10.0 | 10.9 | Same as D 6631 |
| Homco Horse Feed | 8537 | 7000 | D. R. Murray, Clinton | 10.5 | 2.5 | 3.7 | 10.0 | 10.7 | Same as D 6631 |
| Homco Hog Feed | 8846 | 7327 | Ola Chambers, Anderson | 9.7 | 4.0 | 4.0 | 16.0 | 13.8 | Wheat middlings, velvet bean meal, corn feed meal, tankage, alfalfa, molasses. |
| Homco Hog Feed | 8846 | 7865 | Richards & Lawson, Shelbyville | 8.0 | 4.0 | 5.4 | 16.0 | 17.1 | Hominy feed not identified Wheat middlings, hominy feed, velvet bean feed meal, tankage, alfalfa stems, mo- lasses |
| Homco Hog Feed | 8846 | 7991 | M. A. Conroy, Jeffersonville | 9.0 | 4.0 | 5.1 | 16.0 | 16.2 | Same as D 7865 |
| Hexite Dairy Feed | 8847 | 7262 | South Bend Grain Co., South Bend | 10.1 | 3.5 | 4.5 | 16.0 | 16.8 | Wheat bran, probably hominy feed, cotton- seed meal, velvet bean meal, alfalfa, mo- lasses |

| | | | | | | | | |
|--|------|--|------|-----|-----|------|------|---|
| American Milling Company, Peoria, Ill. | 5321 | Sullivan Mill & Elevator Co., Sullivan | 16.5 | 2.5 | 3.2 | 10.0 | 11.5 | Corn, oats, barley, alfalfa, 1.2% salt, molasses |
| Sucrene Horse & Mule Feed (with Alfalfa) | | | | | | | | |
| Amco Fat Maker | 6348 | Edw. F. Goeke Co., Evansville | 12.9 | 3.5 | 4.6 | 10.0 | 13.6 | Cracked corn, oats, distillers' grains, clipped oat by-product, molasses, 0.8% salt |
| Amco Fat Maker | 7831 | Probst & Kassebaum, Indianapolis | 12.8 | 3.5 | 4.9 | 10.0 | 12.8 | Same as D 5641. Salt not determined |
| Amco Fat Maker | 7834 | J. N. Shoemaker, Borden | 13.4 | 3.5 | 3.8 | 10.0 | 13.5 | Same as D 5641 |
| Amco Dairy Feed | 8154 | French Lick Feed Exchange, French Lick | 7.7 | 8.0 | 9.0 | 25.0 | 23.6 | Distillers' grains, gluten feed, clipped oat by-product, salt |
| Amco Dairy Feed | 8154 | J. H. Shine & Co., New Albany | 8.0 | 8.0 | 7.7 | 25.0 | 25.9 | Same as D 5741. 1% salt |
| Sucrene Dairy Feed | 8219 | L. P. Simpson, Palmyra | 11.2 | 3.5 | 6.0 | 16.5 | 19.4 | Cottonseed meal, gluten feed, distillers' grains, ground grain screenings, clipped oat by-product, molasses, 0.8% salt |
| Sucrene Dairy Feed | 8219 | Thos. C. Fisher, Anderson | 11.1 | 3.5 | 6.4 | 16.5 | 20.8 | Same as D 5333. 1.1% salt |
| Sucrene Dairy Feed | 8219 | Richard Hazans, Greenfield | 13.0 | 3.5 | 5.0 | 16.5 | 19.8 | Same as D 5333 |
| Sucrene Dairy Feed | 8219 | J. H. Williamson Co., Muncie | 8.6 | 3.5 | 4.1 | 16.5 | 18.3 | Same as D 5333. Salt not determined |
| Sucrene Horse Feed with Alfalfa | 8246 | Probst & Kassebaum, Indianapolis | 15.0 | 2.5 | 3.1 | 10.0 | 11.3 | Corn, oats, alfalfa, probably distillers' grains, probably barley, molasses, 1.2% salt |
| Tip Top Horse Feed, with Alfalfa | 8248 | J. H. Williamson Co., Muncie | 17.0 | 2.5 | 3.2 | 10.0 | 10.9 | Same as D 6386. 1.3% salt |
| Amco Fat Maker | 8249 | Thomas C. Fisher, Anderson | 10.5 | 3.5 | 4.1 | 10.0 | 14.2 | Cracked corn, oats, distillers' grains, clipped oat by-product, molasses, salt |
| Amco Fat Maker | 8249 | The Corner Scurce Co., Mooresville | 16.3 | 3.5 | 3.7 | 10.0 | 13.0 | Same as D 6293 |
| Amco Fat Maker | 8249 | Thosie Fisher, Anderson | 12.6 | 3.5 | 3.8 | 10.0 | 10.4 | Same as D 6293 |
| Sucrene Hog Meal | 8252 | Edw. F. Goeke Co., Evansville | 10.8 | 4.0 | 4.1 | 18.0 | 21.0 | Corn feed meal, alfalfa, corn distillers' grains, linseed meal, blood flour, molasses, 0.4% salt |
| Peoria Horse Feed | 8318 | Probst & Kassebaum, Indianapolis | 15.2 | 2.5 | 3.0 | 10.0 | 12.8 | Cracked corn, oats, distillers' grains, alfalfa meal, oat shorts, hulls, molasses, 1.6% salt |
| Sucrene Dairy Feed | 8726 | J. A. Zink & Son, Pekin | 8.2 | 3.5 | 4.0 | 16.5 | 18.0 | Cottonseed meal, corn gluten feed, wheat screenings, clipped oat by-product, corn distillers' grains, palm kernel meal, calcium carbonate, salt, molasses |
| Sucrene Dairy Feed | 8726 | O. M. Martin, Corydon Junction | 7.9 | 3.5 | 4.2 | 16.5 | 18.3 | Same as D 8048 |
| Amco Dairy Feed | 8728 | O. L. Cauble, Pekin | 7.5 | 8.0 | 5.8 | 25.0 | 27.2 | Cottonseed meal, corn distillers' grains, palm kernel meal, clipped oat by-product, corn gluten feed, calcium carbonate, salt |
| Amco Dairy Feed | 8728 | O. L. Cauble, Pekin | 8.1 | 8.0 | 5.8 | 25.0 | 26.6 | Same as D 8028 |
| Amco Dairy Feed | 8728 | O. L. Cauble, Pekin | 7.9 | 8.0 | 6.0 | 25.0 | 27.9 | Same as D 8028 |
| Arady Farms Milling Company, Rondout, Ill. | 7265 | Pierce Elevator Co., Union City | 12.9 | 3.5 | 4.2 | 16.0 | 15.1 | Cottonseed meal, malt sprouts, brewers' grains, clipped oat by-product, ground grain and flax screenings, molasses, 0.3 salt |
| "R. K. D." Arady Dairy Feed | 7265 | North Side Feed Store, Mishawaka | 9.9 | 3.5 | 3.4 | 16.0 | 18.1 | Same as D 5391 |
| "R. K. D." Arady Dairy Feed | 7265 | G. E. Vest, Brook | 12.0 | 5.0 | 4.8 | 13.0 | 13.9 | Wheat middlings, linseed oil meal, corn germ meal, cottonseed meal, tankage, wheat screenings, oat screenings, probably barley screenings, flax, peat, salt, molasses |

†† Not tagged. Labels furnished

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TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | Inspection | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|--------|------------|---|--------------------------------------|--------------------|---------------------|-------|---------------|-------|--|
| | | Official | D | | | Guaranteed | Found | Guaranteed | Found | |
| Ashbrook, Company, The J. S., Mattoon, Ill. | 5200 | 5200 | | Fisher Hay & Grain Co., Evansville | 14.8 | 2.0 | 3.2 | 9.5 | 10.4 | Cracked corn, oats, alfalfa, molasses |
| Peerless Horse Ration | 5200 | 5200 | | Lemon Milling Co., Bedford | 14.8 | 2.0 | 2.9 | 9.5 | 11.1 | Same as D 5680 |
| Peerless Horse Ration | 5200 | 5200 | | McCoy & Garten, Columbus | 13.6 | 2.0 | 3.3 | 9.5 | 10.5 | Same as D 5680 |
| Diamond A. Horse Feed | 6415 | 5945 | | S. R. Snell, Muncie | 14.6 | 2.0 | 2.9 | 9.0 | 10.6 | Same as D 5680 |
| Diamond A. Horse Feed | 6415 | 6471 | | McCoy & Garten, Indianapolis | 15.2 | 2.0 | 3.4 | 9.0 | 10.7 | Same as D 5680 |
| ++Diamond A. Horse Feed | 6415 | 6580 | | Plainfield Milling Co., Plainfield | 13.3 | 2.0 | 3.3 | 9.0 | 10.9 | Same as D 5680 |
| Diamond A. Horse Feed | 6415 | 7005 | | Smith Grocery Co., Clinton | 13.9 | 2.0 | 2.4 | 9.0 | 11.5 | Same as D 5680 |
| Jumbo Mixed Feed | 6947 | 6802 | | Chas. W. Brizius Co., Evansville | 15.8 | 2.0 | 3.7 | 8.0 | 11.5 | Ground corn, oats, alfalfa, corn bran, ground kafir, molasses |
| ++Peerless Cow Feed | 8002 | 5307 | | Bollinger & Robbins, Shelburne | 12.8 | 3.0 | 3.4 | 15.0 | 14.6 | Ground corn, wheat bran, middlings, cottonseed meal, alfalfa meal, oat shorts, oat hulls, molasses |
| Peerless Cow Feed | 8002 | 8005 | | C. H. Galloway & Co., Paoli | 8.0 | 3.0 | 3.4 | 15.0 | 15.3 | Same as D 5597 |
| Badenoch, Co., J. J., Chicago, Ill. | 2711 | 7563 | | Cash Flour & Feed Store, South Bend | 8.5 | 4.0 | 4.8 | 10.5 | 11.2 | Cracked corn, rolled oats. Barley guaranteed but not identified |
| Gloscoat Horse Feed | 6221 | 7203 | | South Bend Grain Co., South Bend | 15.1 | 2.0 | 2.1 | 10.0 | 11.8 | Cracked corn, oats, alfalfa, molasses |
| ++Graingold Dairy Feed | 8831 | 7009 | | McCoy & Garten, Indianapolis | 7.5 | 5.0 | 5.4 | 26.0 | 26.3 | Probably oats, probably hominy feed, cottonseed meal, linseed meal, alfalfa, corn gluten feed, wheat bran, screenings, salt |
| Bartlett Company, The J. E., Jackson, Mich. | 8404 | 6238 | | Omer G. Whelan, Richmond | 6.7 | 5.0 | 9.4 | 21.0 | 21.2 | Malt sprouts, malted barley, corn |
| Big Four Elevator & Milling Company, Mattoon, Ill. | 6903 | 6773 | | Harper & Harper, Evansville | 14.5 | 2.7 | 3.4 | 9.7 | 10.7 | Cracked corn, oats, alfalfa, molasses |
| Big 4 Horse Feed | 6903 | 7812 | | Harper & Harper, Evansville | 9.4 | 2.7 | 3.9 | 9.7 | 10.8 | Same as D 6773 |
| Blatchford Calf Meal Factory, Waukegan, Ill. | 7203 | 8004 | | Harting & Co., Elwood | 8.0 | 5.0 | 6.5 | 18.0 | 23.0 | Anise, linseed oil meal, bean meal, locust bean meal, oat meal, blood flour, wheat flour, barley meal, cottonseed meal, rice polish, corn meal, cocoa shell meal, probably flaxseed meal, salt |
| Brizius Company, The Chas. W., Newburgh, Ind. | 7380 | 5331 | | The Chas. W. Brizius Co., Evansville | 15.3 | 2.0 | 2.9 | 9.0 | 10.4 | Cracked corn, oats, alfalfa, molasses |
| Log Cabin Horse Feed | 7380 | 6709 | | The Chas. W. Brizius Co., Evansville | 15.0 | 2.0 | 3.4 | 9.0 | 11.0 | Same as D 5331 |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|--------|---|--------------------|---------------------|-------|-------------------------|-------|--|
| | | | | Guaranteed | Found | Guaranteed | Found | |
| Butler & Company, Edw. J., Chicago, Ill. | | | | | | | | |
| Butler's Premium Hog Feed | 7774 | Farmer's Elevator Co., Kempton | 9.0 | 4.0 | 5.7 | 23.0 | 23.7 | Same as D 5894 |
| Butler's Premium Hog Feed | 7774 | Dunlap & Vandergruff, Franklin | 8.0 | 4.0 | 5.4 | 23.0 | 25.5 | Same as D 5894 |
| Butler's Balanced Ready Ration Hog Feed | 8074 | Crabbs Reynolds Taylor Co., Reynolds | 7.0 | 6.0 | 7.6 | 16.5 | 22.3 | Wheat middlings, corn germ meal, tank- age, peanut hulls, palm oil from manu- facture of tin plate Same as D 5492 |
| Butler's Balanced Ready Ration Hog Feed | 8074 | Anchor Milling Co., Rochester | 6.1 | 6.0 | 5.6 | 16.5 | 21.1 | Wheat middlings, corn germ meal, tank- age, peanut meats and shells, palm oil from the manufacture of tin plate |
| Butler's Balanced Ready Ration Hog Feed | 8837 | Anchor Milling Co., Rochester | 7.4 | 6.0 | 6.6 | 16.5 | 18.1 | Wheat middlings, flour stuff, corn germ meal, tankage, peanut hulls, palm oil from the manufacture of tin plate |
| Butler's Balanced Ready Ration Hog Feed | 8837 | Crabbs Reynolds Taylor Co., Reynolds | 8.6 | 6.0 | 7.1 | 16.5 | 17.9 | Same as D 7326. Cottonseed hulls identi- fied but not guaranteed |
| Butler's Balanced Ready Ration Hog Feed 225 | 8837 | Thomas Milling Co., Marion | 8.1 | 6.0 | 5.5 | 16.5 | 17.5 | Same as D 7326. Cottonseed hulls identi- fied but not guaranteed |
| Butler's Balanced Ready Ration Hog Feed 226 | 8837 | Hershman & Son, Tipton | 8.7 | 6.0 | 4.3 | 16.5 | 20.3 | Same as D 7326. Cottonseed hulls identi- fied but not guaranteed |
| Butler's Balanced Ready Ration Hog Feed 227 | 8837 | Farmer's Elevator Co., Jamestown | 8.2 | 6.0 | 6.3 | 16.5 | 21.8 | Same as D 7326. Cottonseed hulls identi- fied but not guaranteed |
| Butler's Premium Dairy Feed | 8934 | Warren Elevator Co., Warren | 8.9 | 6.0 | 6.0 | 21.0 | 21.0 | Same as D 7326. Cottonseed hulls identi- fied but not guaranteed |
| Cairo Milling Company, Cairo, Ill. | | | | | | | | |
| Velvet Molasses Feed | 8516 | Hurst & Co., Indianapolis | 12.7 | 2.0 | 2.5 | 9.0 | 11.6 | Corn, alfalfa meal, ground wheat screen- ings, molasses |
| Champion Feed Milling Company, Clinton (Lyons Station), Ia. | 6774 | G. E. Vest, Brook | 18.7 | 1.5 | 1.4 | 10.0 | 8.2 | Wheat bran, ground grain screenings, flax plant by-product, charred peat, probably cottonseed meal, molasses. Corn gluten feed and cottonseed hulls identified but not guaranteed. Corn guaranteed but not identified |
| Champion Molasses Feed Com- pound 223 | 6774 | Hawley Hall, Lewisville | 17.7 | 1.5 | 1.9 | 10.0 | 9.7 | Same as D 7775 |

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|---|------|------|--|------|-----|-----|------|------|--|
| Chapin & Company, Chicago, Ill. †† Unicorn Dairy Ration ----- | 7900 | 5715 | Indiana School for Feeble Minded Youth, Fort Wayne----- | 7.7 | 5.5 | 5.9 | 26.0 | 27.9 | Wheat bran, cottonseed meal, hominy feed, distillers' grains, brewers' grains, gluten meal, malt sprouts, linseed meal, 0.8% salt. Wheat middlings identified but not guaranteed. Barley feed guaranteed, not identified. Distillers' grains, cottonseed meal, hominy feed, gluten feed, malt sprouts, brewers' grains, wheat bran, probably linseed meal, ground barley, 0.7% salt Same as D 6094 |
| Unicorn Dairy Ration ----- | 7900 | 0004 | Northern Hospital for Insane, Logansport ----- | 7.3 | 5.5 | 7.3 | 26.0 | 28.0 | Same as D 6094 |
| Unicorn Dairy Ration ----- | 7900 | 7393 | McCorle & Riley, Thorntown-- | 9.4 | 5.5 | 6.6 | 26.0 | 27.0 | Corn distillers' grains, cottonseed meal, linseed meal, hominy meal, corn gluten feed, malt sprouts, brewers' dried grains, wheat bran, salt. Barley feed guaranteed but not identified Same as D 6094 |
| Unicorn Dairy Ration ----- | 7900 | 7430 | Berne Grain & Hay Co., Berne-- | 7.8 | 5.5 | 7.1 | 23.0 | 26.2 | |
| Unicorn Dairy Ration ----- | 7900 | 8180 | C. F. Catron, Westville ----- | 7.5 | 5.5 | 5.6 | 26.0 | 27.9 | |
| Chapman-Doake Company, The, Decatur, Ill. Vigor Horse and Mule Feed ----- | 8328 | 6024 | C. F. Carter, Terre Haute----- | 11.6 | 2.0 | 3.4 | 8.0 | 10.5 | Ground corn, oats, alfalfa, molasses |
| Diamond "F" Cow Feed ----- | 8432 | 6817 | Fisher Hay & Grain Co., Evansville ----- | 10.7 | 3.0 | 2.7 | 12.0 | 10.2 | Cracked corn, wheat bran and middlings, hominy feed, cottonseed meal, cottonseed hulls, alfalfa, 1.4% salt, molasses |
| Diamond "F" Horse Feed ----- | 8433 | 6816 | Fisher Hay & Grain Co., Evansville ----- | 13.7 | 3.0 | 3.4 | 10.0 | 10.7 | Cracked corn, oats, alfalfa, 2% salt, mo- lasses |
| †† Yankee Horse and Mule Feed ----- | 8342 | 7195 | G. E. Reeve & Son, Washington | 13.8 | 3.0 | 2.6 | 11.5 | 12.2 | Cracked corn, oats, wheat bran, alfalfa, corn gluten feed, molasses, salt. Corn feed meal guaranteed but not identified |
| †† Diamond "F" Hog Feed ----- | 8343 | 7194 | G. E. Reeve & Son, Washington | 8.5 | 4.0 | 4.7 | 22.0 | 20.8 | Wheat middlings, corn feed meal, corn gluten feed, tankage, cottonseed feed, 0.2% salt. Linseed oil meal guaranteed but not identified. Corn germ meal identified but not guaranteed |
| Diamond "F" Hog Feed 229 ----- | 8343 | 7604 | Smith Grocery Co., Clinton ---- | 8.7 | 4.0 | 5.4 | 22.0 | 19.0 | Wheat shorts, corn feed meal, gluten feed, tankage, cottonseed meal and hulls, salt. Linseed oil meal guaranteed, not iden- tified |
| Cincinnati Grain & Hay Company, The, Cincinnati, Ohio No Better Horse & Mule Feed ----- | 7310 | 7055 | C. W. Curtis & Co., Aurora----- | 14.3 | 4.0 | 3.7 | 12.0 | 11.0 | Cracked corn, oats, wheat bran, brewers' grains, alfalfa, molasses, 0.6% salt. Cot- tonseed hulls identified but not guaranteed |
| †† Dry Dairy Ration ----- | 8672 | 7313 | Barney Eder, North Vernon---- | 7.8 | 5.6 | 4.8 | 20.2 | 19.2 | Corn distillers' grains, brewers' grains, cot- tonseed meal, wheat bran, middlings, salt. Malt sprouts guaranteed but not identified. Cottonseed hulls and siftings from yellow corn identified but not guaranteed |
| Dry Dairy Ration ----- | 8672 | 7664 | C. J. Dills, Aurora ----- | 7.8 | 5.6 | 4.0 | 20.2 | 19.9 | Distillers' dried grains, brewers' dried grains, malt sprouts, cottonseed meal, hominy feed, wheat bran, middlings, salt |

†† Not tagged. Labels furnished
225 3 tons removed from sale. Returned to mfrs. Refund. See page 20
226 1500 lbs. removed from sale. Returned to mfrs. Refund. See page 20
227 5 tons withdrawn from sale
228 700 lbs. removed from sale
229 Refund. See page 20

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | Official Inspection | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|--------|---------------------|--|--------------------|---------------------|-------|-------------------------|-------|---|
| | | | | | Guaranteed | Found | Guaranteed | Found | |
| Combs & Sons, S., Vincennes, Ind. Combs Oats, Corn Meal, Alfalfa Meal and Molasses | 7316 | 7199 | Manufacturers | 15.0 | 2.0 | 2.5 | 8.0 | 11.5 | Oats, cracked corn, alfalfa, molasses |
| Crabbs Reynolds Taylor Company, Lafayette, Ind. Thrift Horse Feed | 8313 | 7325 | Crabbs Reynolds Taylor Co., Reynolds | 11.4 | 2.5 | 3.8 | 10.0 | 11.0 | Cracked corn, oats, corn feed meal, wheat bran, wheat screenings, alfalfa, salt, mo- lasses |
| Dickinson Company, The Albert, Chicago, Ill. White Cross Horse Feed | 6245 | 5924 | H. E. Pitman, Bedford | 9.5 | 2.5 | 3.9 | 10.0 | 10.0 | Corn, rolled oats, probably barley |
| White Cross Horse Feed | 6245 | 6075 | Culver Feed & Grain Co., Culver | 8.3 | 2.5 | 2.7 | 10.0 | 10.7 | Cracked corn, rolled oats. Barley guaranteed but not identified |
| White Cross Horse Feed | 6245 | 6947 | Jones Bros., Attica | 7.8 | 2.5 | 4.9 | 10.0 | 10.5 | Same as D 6675 |
| Dickinsons Hobby Horse Feed | 6753 | 7247 | Indiana Flour Co., Terre Haute | 14.4 | 1.5 | 1.9 | 9.0 | 13.0 | Cracked corn, rolled oats, probably barley, alfalfa, molasses |
| Dickinsons Honeysuckle Feed | 6755 | 6129 | Tubey Canning Co., Muncie | 16.4 | 0.5 | 2.0 | 10.0 | 13.2 | Cracked corn and oats, barley, alfalfa, mo- lasses |
| Rival Horse Feed | 7240 | 6455 | Roper & Brown, Hobart | 14.1 | 1.5 | 2.0 | 9.0 | 11.3 | Cracked corn, rolled oats, probably barley, alfalfa, molasses |
| Stag Stock Feed | 8500 | 6952 | Indiana Flour & Feed Co., Terre Haute | 9.3 | 3.0 | 5.2 | 9.0 | 11.5 | Corn feed meal, corn bran, wheat middlings, probably barley, cottonseed meal, corn screenings, oat middlings, oat hulls, 0.7% salt |
| Stag Stock Feed | 8500 | 7297 | Middlebury Grain Co., Middlebury | 9.1 | 3.0 | 4.0 | 9.0 | 9.6 | Same as D 6652 |
| Dixie Mills Company, East St. Louis, Ill. Dixie Horse and Mule Feed 230 | 5419 | 5965 | John M. Klensch, Evansville | 15.1 | 2.5 | 2.4 | 10.0 | 10.0 | Corn, oats, alfalfa, molasses. Cottonseed meal guaranteed but not identified |
| Dixie Horse and Mule Feed 231 | 5419 | 5969 | Naas-Sanderson Co., Evansville | 15.2 | 2.5 | 2.6 | 10.0 | 9.1 | Same as D 5665 |
| Dixie Horse and Mule Feed 231 | 5419 | 5970 | Naas-Sanderson Co., Evansville | 14.2 | 2.5 | 2.4 | 10.0 | 10.1 | Same as D 5665 |
| Dixie Horse and Mule Feed 232 | 5419 | 5971 | W. H. Small & Co., Evansville | 14.5 | 2.5 | 2.6 | 10.0 | 9.9 | Same as D 5665 |
| Dixie Horse and Mule Feed 233 | 5419 | 5972 | W. H. Small & Co., Evansville | 15.2 | 2.5 | 2.6 | 10.0 | 10.3 | Same as D 5665 |
| Dixie Horse and Mule Feed 234 | 5419 | 5765 | The Farmers Mill, Huntington | 14.0 | 2.5 | 2.7 | 10.0 | 10.2 | Same as D 5665 |
| Dixie Horse and Mule Feed 235 | 5419 | 5788 | Wallace Milling Co., Dale | 14.1 | 2.5 | 2.5 | 10.0 | 10.6 | Cracked corn, oats, probably cottonseed meal, alfalfa, molasses |
| Dixie Horse and Mule Feed 236 | 5419 | 5815 | Peter Backer, Troy | 15.0 | 2.5 | 2.9 | 10.0 | 10.3 | Same as D 5665 |
| Dixie Horse and Mule Feed 237 | 5419 | 5816 | A. Graves Sons, Tell City | 15.9 | 2.5 | 2.8 | 10.0 | 9.3 | Same as D 5665 |
| Dixie Horse and Mule Feed 238 | 5419 | 5817 | A. Graves Sons, Tell City | 16.7 | 2.5 | 2.6 | 10.0 | 9.8 | Same as D 5665 |
| Anchor Molasses Horse and Mule Feed | 6663 | 6954 | Indiana Milling Co., Terre Haute | 14.9 | 2.5 | 3.8 | 10.0 | 10.2 | Corn, oats, alfalfa meal, molasses |
| Anchor Dairy Feed 239 | 7447 | 6905 | Springs Valley Milling Co., French Lick | 9.9 | 4.0 | 4.1 | 20.5 | 17.9 | Cottonseed meal, wheat middlings, wheat bran, brewers' grains, corn feed meal, alfalfa |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|--------|---------------------|-------------------------------------|---------------------|-------|-------------------------|-------|---|
| | | | | Guaranteed | Found | Guaranteed | Found | |
| Emison & Company, J. & S. (Baltic Mills) Vincennes, Ind. Emison's Dairy Feed | 8258 | 6299 | Pickens & Brengle, Orleans. | 8.9 | 3.7 | 3.2 | 12.7 | 13.3 |
| Feed Products Miling Company, Chicago, Ill. Kingfalfa Horse Feed | 8355 | 7205 | J. H. Leonard, Sullivan | 16.3 | 2.0 | 1.7 | 10.0 | 12.9 |
| Polo Stock Feed | 8353 | 7214 | J. H. Leonard, Sullivan | 9.9 | 2.5 | 3.4 | 10.0 | 10.4 |
| Etall Dairy Feed | 8357 | 7286 | J. C. Barrett, South Bend | 9.0 | 4.0 | 3.4 | 25.0 | 25.3 |
| Fenger Grain Company, The, Cincinnati, Ohio Nutritia Horse Feed | 8333 | 7056 | C. W. Curtis & Co., Aurora | 15.1 | 4.0 | 3.6 | 12.0 | 11.1 |
| Fisher Bros., Evansville, Ind. Red Crown Horse & Mule Feed | 8717 | 7847 | Manufacturers | 12.4 | 1.5 | 3.4 | 9.0 | 11.4 |
| Diamond Horse and Mule Feed | 8719 | 7846 | Manufacturers | 11.9 | 2.0 | 3.5 | 9.0 | 11.1 |
| Diamond Hog Feed | 8720 | 7842 | Manufacturers | 8.2 | 4.0 | 5.9 | 20.0 | 22.2 |
| Fornax Milling Company, Decatur, Ind. Fornax Hog Feed | 7199 | 5419 | Manufacturers | 9.7 | 2.8 | 3.9 | 12.0 | 14.9 |
| Fornax Hog Feed | 7199 | 6089 | Manufacturers | 10.9 | 2.8 | 4.1 | 12.0 | 15.0 |
| Gandy & Company, O., South Whitley, Ind. Standard Hog Feed | 8283 | 6516 | W. H. Baker, Goshen | 10.9 | 3.0 | 6.0 | 12.0 | 14.7 |
| Glen Echo Mills, Indianapolis, Ind. Three In One | 5012 | 6429 | Manufacturers | 9.6 | 4.0 | 5.9 | 10.0 | 11.5 |
| Golden Grain Milling Company, East St. Louis, Ill. "Puritan Horse & Mule Feed" | 8205 | 6039 | Prater-Mottier Co., Terre Haute | 12.8 | 1.5 | 2.8 | 9.0 | 10.3 |
| Grain Belt Mills Company, South St. Joseph, Mo. "Hunter" Horse and Mule Feed | 8147 | 5928 | J. H. Shline & Co., New Albany | 16.2 | 2.0 | 2.3 | 9.0 | 9.5 |
| "Hunter" Horse and Mule Feed | 8147 | 6813 | W. H. Small & Co., Evansville | 14.6 | 2.0 | 2.8 | 9.0 | 11.5 |
| "Broncho" Horse and Mule Feed | 8148 | 5780 | J. Glenger & Co., Jeffersonville | 13.4 | 1.5 | 2.2 | 10.0 | 11.3 |
| "Broncho" Horse and Mule Feed | 8148 | 6246 | J. H. Menke, Richmond | 14.5 | 1.5 | 1.8 | 10.0 | 11.2 |
| "Broncho" Horse and Mule Feed | 8148 | 6308 | M. A. Conroy, Jeffersonville | 18.9 | 1.5 | 1.9 | 10.0 | 11.6 |
| "Broncho" Horse and Mule Feed | 8148 | 6468 | Wm. Rouse & Son, Indianapolis | 18.2 | 1.5 | 1.7 | 10.0 | 10.4 |
| Oatalfa (Brand) Horse & Mule Feed | 8750 | 7639 | Probst & Kassebaum, Indianapolis | 13.3 | 2.0 | 2.4 | 12.0 | 12.5 |
| | | | | | | | | Oats, alfalfa, salt, molasses |
| | | | | | | | | Ground corn, oats, alfalfa meal, 1.7% salt, molasses |
| | | | | | | | | Ground corn, oats, alfalfa, molasses, 1% salt |
| | | | | | | | | Same as D 5828. 1.5% salt |
| | | | | | | | | Corn, oats, alfalfa, 1% salt, molasses. |
| | | | | | | | | Same as D 5780. 1.4% salt |
| | | | | | | | | Same as D 5780. 0.9% salt |
| | | | | | | | | Same as D 5780. 1.3% salt |

| | | | | | | | | | |
|--|------|------|--|------|-----|-----|------|------|---|
| Habig Bros., Indianapolis, Ind. Habig's Horse Feed | 3271 | 7645 | Manufacturers | 9.1 | 4.0 | 4.5 | 10.0 | 12.3 | Oats, wheat bran, linseed meal, corn feed meal, corn bran. Hominy feed guaranteed but not identified |
| Hales & Edwards Company, Chicago, Ill. Harvest Horse Feed | 7615 | 6945 | M. C. Strole, Terre Haute | 14.5 | 2.0 | 3.4 | 10.0 | 11.7 | Ground corn and oats, barley, alfalfa meal, molasses |
| Excelsior Horse Feed | 7817 | 7299 | Bolinger & Robbins, Shelburne | 8.8 | 3.0 | 4.0 | 10.0 | 10.0 | Cracked corn, rolled oats, rolled barley |
| Hillscher, J. W., Kniman, Ind. Hog Feed | 4763 | 5376 | Manufacturer | 12.1 | 2.5 | 2.6 | 10.0 | 9.7 | Corn and rye |
| Illinois Feed Mills, St. Louis, Mo. O. K. Feed with Molasses | 7881 | 6420 | Harting & Co., Elwood | 14.3 | 1.5 | 2.5 | 9.0 | 10.6 | Cracked corn, oats, alfalfa, molasses, 1% salt |
| O. K. Feed with Molasses | 7881 | 6961 | W. C. Hall Milling Co., Brazil | 14.1 | 1.5 | 2.3 | 9.0 | 10.4 | Same as D 6420. 1.1% salt |
| O. K. Feed with Molasses | 7881 | 7120 | Nawcomb & Whitehorn, Columbus | 16.5 | 1.5 | 2.7 | 9.0 | 10.6 | Same as D 6420. 1.1% salt |
| Peeks Mule Feed with Molasses | 7882 | 6633 | Harrison Smith, Terre Haute | 12.9 | 1.5 | 2.9 | 9.0 | 11.0 | Same as D 6420. 1.2% salt |
| Indiana Milling Company, Terre Haute, Ind. Sterling Mixed Feed | 6824 | 6947 | Manufacturers | 9.9 | 3.0 | 2.9 | 10.0 | 9.9 | Wheat bran with ground screenings, cob meal, ground corn |
| International Sugar Feed Company, Minneapolis, Minn. International Climax Feed | 5325 | 5533 | W. H. McCarty, Wabash | 13.0 | 4.0 | 4.3 | 12.5 | 14.3 | Cottonseed meal, clipped oat by-product, ground grain screenings, 1.7% salt, molasses |
| International Special Dairy Feed | 5327 | 6856 | Studebaker Grain & Seed Co., Bluffton | 12.0 | 4.5 | 4.8 | 15.0 | 14.9 | Same as D 5533 |
| International Special Dairy Feed | 5327 | 7099 | John A. Nordmeyer, Morris | 15.6 | 4.5 | 4.5 | 15.0 | 14.9 | Same as D 5533 |
| International Hog Feed and Charcoal | 6097 | 6002 | Hipskind-Conrad Co., Wabash | 12.4 | 4.5 | 5.2 | 22.5 | 21.5 | Linseed meal, tankage, ground grain screenings, charcoal, molasses, 1.75% salt |
| International Hog Feed and Charcoal | 6097 | 7317 | Hurst & Co., Indianapolis | 6.2 | 4.5 | 5.2 | 22.5 | 22.8 | Same as D 6602 |
| International Hog Feed and Charcoal | 6097 | 7638 | M. S. Stekel, Mulbury | 9.7 | 4.5 | 3.6 | 22.5 | 23.0 | Salt not determined |
| International Hog Feed and Charcoal | 6097 | 7679 | Aene Milling Co., Aurora | 9.7 | 4.5 | 6.0 | 22.5 | 22.6 | Salt not determined |
| International Climax Hog Feed | 8411 | 6855 | Studebaker Grain & Seed Co., Bluffton | 13.4 | 5.0 | 5.6 | 16.0 | 17.8 | Same as D 6602. Salt not determined |
| International Climax Hog Feed | 8411 | 7632 | Yorktown Lumber Co., Yorktown | | | | | | Ground wheat, oats, barley, ground grain screenings, tankage, linseed meal, charcoal, molasses, 1.7% salt |
| International Special Dairy Feed | 8412 | 7035 | C. H. Ellis, Muncie | 8.2 | 5.0 | 4.3 | 16.0 | 18.8 | Same as D 6855. Salt not determined |
| International Special Dairy Feed | 8412 | 7035 | C. H. Ellis, Muncie | 16.8 | 4.5 | 4.3 | 15.0 | 13.9 | Cottonseed meal, grain and flaxseed screenings, clipped oat by-product, molasses, 0.9% salt |
| International Special Dairy Feed | 8412 | 7701 | Milan Milling Co., Milan | 10.5 | 4.5 | 4.5 | 15.0 | 17.5 | Same as D 7036. Considerable cottonseed hulls identified |
| International Climax Dairy Feed | 8413 | 7010 | John A. Nordmeyer, Morris | 14.7 | 4.0 | 4.4 | 12.5 | 12.8 | Same as D 7036. 1.5% salt |
| International Planter's Dairy Feed | 8697 | 8231 | Witmer Grain Co., Grabb | 8.9 | 3.5 | 3.5 | 22.0 | 22.1 | Cottonseed feed, salt, molasses |
| Jordan, Geo. M., Vincennes, Ind. G. M. J. Pig Meal | 7969 | 6751 | Theo. A. Stunkel, Hauptstadt | 10.0 | 5.5 | 7.5 | 16.5 | 21.0 | Wheat shorts, corn feed meal, distillers' grains, meat scraps |
| G. M. J. Pig Meal | 7969 | 7827 | Geo. M. Claypole, Evansville | 8.6 | 5.5 | 4.7 | 16.5 | 19.1 | Same as D 6751 |
| G. M. J. Producer Dairy Feed | 8107 | 7788 | Geo. M. Claypole, Evansville | 8.0 | 6.0 | 5.5 | 18.0 | 20.3 | Wheat bran and screenings, corn feed meal, cottonseed meal, distillers' dried grains |
| "Producer" | 8108 | 7920 | Manufacturer | 14.4 | 3.0 | 2.7 | 9.0 | 10.2 | Cracked corn, oats, alfalfa, molasses |
| "Producer" | 8108 | 7789 | Geo. M. Claypole, Evansville | 11.9 | 3.0 | 3.3 | 9.0 | 12.1 | Same as D 7220. Wheat and barley identified but not guaranteed |

†† Not tagged. Labels furnished

241 12 tons removed from sale. Refund. See page 20

| | | | | | | | | |
|---|------|--|------|-----|-----|------|------|--|
| Louisville Cereal Mill Company, Louisville, Ky. *Nonesuch Feed | 7434 | Henryville Supply Co., Henryville | 7.9 | --- | 8.0 | --- | 11.8 | Wheat bran, middlings, hominy feed |
| McCoy & Garten, Indianapolis, Ind. Green Pasture | 5513 | Manufacturers | 17.7 | 0.5 | 0.9 | 12.0 | 12.2 | Alfalfa, molasses, 1% salt |
| National Oats Company, St. Louis, Mo. Nutro Sweet Feed | 7943 | James M. Lee & Co., New Albany | 13.6 | 2.5 | 2.4 | 9.0 | 8.3 | Cracked corn, alfalfa meal, ground grain screenings, oat hulls, oat shorts, molasses |
| Ohio Valley Seed Company, Evansville, Ind. Sunny South Horse & Mule Feed | 7648 | Manufacturers | 14.1 | 2.5 | 3.0 | 10.0 | 11.0 | Cracked corn, oats, alfalfa, molasses |
| Sunny South Horse & Mule Feed | 7648 | Manufacturers | 14.3 | 2.5 | 3.3 | 10.0 | 11.6 | Same as D 5661 |
| Sunny South Horse & Mule Feed | 7648 | Manufacturers | 13.2 | 2.5 | 3.4 | 10.0 | 10.3 | Same as D 5661 |
| Big Deal Horse & Mule Feed | 8341 | Manufacturers | 14.0 | 2.0 | 4.0 | 8.0 | 11.8 | Cracked corn, oats, alfalfa, corn bran, kaf-ir corn bran, molasses |
| Big Deal Horse & Mule Feed | 8341 | Manufacturers | 12.0 | 2.0 | 3.6 | 8.0 | 12.4 | Same as D 6841 |
| Omaha Alfalfa Milling Company, Omaha, Neb. Perfection Horse Feed | 4388 | Prater-Mottier Co., Terre Haute | 12.9 | 2.0 | 2.9 | 10.5 | 11.7 | Cracked corn, oats, alfalfa, molasses |
| Al-Corn-O Horse Feed | 5922 | Zihak & Shafer Milling Co., Evansville | 10.6 | 2.0 | 2.2 | 10.0 | 13.2 | Same as D 7250 |
| Alfalfa 242 | 7156 | Prater-Mottier Co., Terre Haute | 18.1 | 1.0 | 1.1 | 11.0 | 12.0 | Alfalfa, molasses, Sample badly burned and charred |
| Green Meadow Dairy Feed | 7180 | Indiana Elevator, Indianapolis | 16.5 | 1.0 | 0.9 | 10.0 | 12.6 | Alfalfa, molasses |
| Peerless Summer Feed | 5778 | W. A. Browning Milling Co., Evansville | 15.3 | 2.0 | 1.7 | 10.0 | 12.5 | Oats, alfalfa meal, molasses. Barley identified but not guaranteed |
| Peters Mill Company, M. O. Omaha, Neb. Peters' Arab Horse Feed | 2761 | Edw. F. Goeke Co., Evansville | 14.7 | 2.0 | 2.8 | 9.0 | 10.6 | Cracked corn, oats, alfalfa meal, molasses |
| Peters' Arab Horse Feed | 2761 | Probst & Kassebaum, Indianapolis | 15.4 | 2.0 | 2.9 | 9.0 | 11.0 | Same as D 5639 |
| Peters' Arab Horse Feed | 2761 | Edw. F. Goeke Co., Evansville | 12.6 | 2.0 | 2.5 | 9.0 | 11.5 | Same as D 5639 |
| Peters' King Corn Sugar Feed | 4500 | Probst & Kassebaum, Indianapolis | 17.2 | 1.5 | 2.1 | 9.0 | 11.2 | Same as D 5639 |
| Peters' High-Score Alfalfa Molasses Feed | 6815 | Hurst & Co., Indianapolis | 18.2 | 0.5 | 1.1 | 10.0 | 13.0 | Alfalfa, molasses |
| Purina Mills, Branch, Ralston Purina Company, St. Louis, Mo. Purina Dairy Feed | 7033 | Guy M. Wells, Knox | 11.5 | 3.8 | 3.3 | 20.0 | 22.4 | Corn gluten feed, brewers' grains, cottonseed meal, alfalfa, molasses, salt |
| Purina Feed with Molasses | 7837 | Ralston Purina Co., Indianapolis | 11.4 | 1.7 | 2.5 | 9.3 | 11.8 | Cracked corn, oats, alfalfa, molasses, 1.7% salt |
| Purina Feed with Molasses | 7837 | C. J. Castetter & Co., Goshen | 13.0 | 1.7 | 2.8 | 9.3 | 10.6 | Same as D 6460. 0.5% salt |
| Purina Feed with Molasses | 7837 | C. E. Smith, Wabash | 14.7 | 1.7 | 2.7 | 9.3 | 10.5 | Same as D 6460. 0.7% salt |
| Purina Feed with Molasses | 7837 | D. A. Pike, Wabash | 13.5 | 1.7 | 2.9 | 9.3 | 10.6 | Same as D 6460. 0.9% salt |
| Purina Feed with Molasses | 7837 | Loughry Bros. Milling & Grain Co., Monticello | 13.7 | 1.7 | 2.8 | 9.3 | 9.8 | Same as D 6460. Salt not determined |
| Purina Cow Chow Feed | 7803 | Purina Mills, Branch Ralston Purina Co., Indianapolis | 7.9 | 4.5 | 4.4 | 24.0 | 26.1 | Cottonseed meal, brewers' grains, alfalfa meal, molasses, hominy feed, salt. Corn germ meal identified but not guaranteed |

212 Feed refused by agent

† Not tagged. Labels furnished
* Not tagged

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | Inspection Official | Sample secured from | Moisture per cent. | Crude fat | | Crude protein | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|--------|------------------------|---|-----------------------|-----------------|-------|------------------|-------|---|
| | | | | | Guar- anteed | Found | Guar- anteed | Found | |
| Purina Mills, Branch, Ralston Purina Purina Co., St. Louis, Mo. | | | | | | | | | |
| Purina Cow Chow Feed | 7808 | 5902 | V. T. Reid, Salem | 8.9 | 4.5 | 3.4 | 24.0 | 24.0 | Cottonseed meal, brewers' grains, alfalfa meal, molasses, hominy feed, 1.4% salt |
| Purina Dairy Feed | 7809 | 6034 | Harrison Smith, Terre Haute | 11.1 | 3.5 | 3.5 | 20.0 | 23.4 | Brewers' grains, cottonseed meal, corn gluten feed, alfalfa meal, molasses, 1.1% salt |
| Purina Dairy Feed | 7809 | 7784 | Crabbs Reynolds Taylor Co., Crawfordsville | 10.2 | 3.5 | 3.0 | 21.0 | 21.4 | Same as D 6634. Salt not determined |
| Purina Dairy Feed | 7809 | 7968 | H. L. Hagee, Peru | 10.7 | 3.5 | 4.2 | 20.0 | 20.9 | Same as D 6634. Salt not determined |
| Purina Fatena Feed | 7871 | 6107 | Terre Haute Cattle Co., Terre Haute | 17.9 | 2.5 | 1.7 | 12.0 | 10.3 | Cracked corn, cottonseed meal, alfalfa meal, dried peat, ground screenings, molasses, 1.4% salt |
| Purina Fatena Feed | 7871 | 6108 | John Barbazett, Terre Haute | 17.9 | 2.5 | 2.0 | 12.0 | 10.6 | Same as D 6107. 1.3% salt |
| Purina Fatena Feed | 7871 | 6161 | Maestic Distillery, Terre Haute | 18.3 | 2.5 | 2.0 | 12.0 | 11.4 | Same as D 6107. Salt not determined |
| Purina Fatena Feed | 7871 | 6648 | Harrison Smith, Terre Haute | 15.6 | 2.5 | 2.1 | 12.0 | 12.2 | Same as D 6107. 1.7% salt |
| Purina Pig Chow | 7873 | 6605 | C. E. Smith, Wabash | 15.0 | 1.7 | 2.6 | 12.0 | 12.1 | Corn feed meal, alfalfa, dried peat, molasses, 1.1% salt |
| Purina Pig Chow | 7873 | 7230 | Fred B. Lash Flour Mills, Farmersburg | 12.8 | 1.7 | 2.6 | 12.0 | 11.4 | Same as D 6605. 1% salt |
| Purina Pig Chow | 7873 | 7733 | Crabbs Reynolds Taylor Co., Crawfordsville | 10.7 | 1.7 | 4.2 | 12.0 | 15.1 | Same as D 6606. Salt not determined |
| Purina O'Molene Feed | 7874 | 6442 | Purina Mills, Branch, Ralston Purina Co., Indianapolis | 10.7 | 3.2 | 3.7 | 9.7 | 9.9 | Corn, oats, alfalfa, molasses, 1.1% salt |
| Purina O'Molene Feed | 7874 | 7374 | Judson Creamery & Produce Co., North Judson | 11.9 | 3.2 | 3.4 | 9.7 | 11.8 | Same as D 6442. Salt not determined |
| Purina Pig Chow | 8743 | 7705 | John Crum, Milan | 10.1 | 3.2 | 4.2 | 14.0 | 14.8 | Corn feed meal, alfalfa, tankage, dried peat, salt, molasses |
| Purina Pig Chow | 8743 | 8334 | V. T. Reid, Salem | 12.3 | 3.2 | 3.6 | 14.0 | 16.2 | Corn germ meal, alfalfa meal, tankage, dried peat, salt, molasses |
| Purina Cow Chow Feed | 8744 | 8332 | V. T. Reid, Salem | 10.1 | 3.7 | 3.7 | 24.0 | 24.9 | Cottonseed meal, corn gluten feed, brewers' grains, alfalfa meal, molasses, salt |
| Quaker Oats Company, The, Chicago, Ill. | | | | | | | | | |
| Green Cross Horse Feed (Molasses Mixed Feed) | 5510 | 5477 | Newcomb & Whitehorn, Columbus | 11.7 | 2.5 | 2.9 | 10.0 | 10.8 | Corn, oats, alfalfa meal, cottonseed meal, oat shorts, oat hulls, molasses |
| Green Cross Horse Feed (Molasses Mixed Feed) | 5510 | 7071 | Eberts & Bro., North Vernon | 16.3 | 2.5 | 2.5 | 10.0 | 12.0 | Same as D 5477 |
| Schumaker Special Horse Feed | 5735 | 7053 | W. T. Burns, Rising Sun | 10.6 | 3.7 | 3.1 | 9.7 | 10.2 | Cracked corn, rolled oats, oat shorts, oat hulls, 0.3% salt |
| Schumaker Special Horse Feed | 5735 | 7690 | Wm. Rouse & Son, Indianapolis | 8.2 | 3.7 | 3.7 | 9.7 | 10.8 | Same as D 7058. Salt not determined |
| Mogul Mixed Molasses Feed | 6714 | 5462 | McCoey & Garten, Columbus | 11.7 | 3.0 | 2.6 | 10.0 | 11.1 | Corn, oats, cottonseed meal, ground grain screenings, oat shorts, oat hulls, molasses. Alfalfa meal guaranteed but not identified |

| | | | | | | | | | |
|---|------|------|--|------|-----|-----|------|------|--|
| Quaker Oats Company, The, Chicago, Ill. Mogul Mixed Molasses Feed | 6714 | 7607 | Anton Rigoni, Clinton | 12.3 | 3.0 | 2.8 | 10.0 | 11.1 | Corn, oats, cottonseed meal, alfalfa meal, grain screenings, oat shorts, oat hulls, molasses |
| White Diamond Feed | 7300 | 5461 | McCoy & Garten, Columbus | 10.0 | 3.2 | 3.8 | 8.0 | 9.1 | Cracked corn, hominy feed, oat hulls, shorts, 0.45% salt. Corn feed meal and trace ground kafir identified but not guaranteed |
| Golden Sweet Mule Feed | 7754 | 7271 | Ulery & Son, South Bend | 13.7 | 2.0 | 2.2 | 9.0 | 10.4 | anted Cracked corn, cottonseed meal, alfalfa, oat shorts, oat hulls, salt. Molasses guaranteed but not identified |
| Golden Sweet Mule Feed | 7754 | 7473 | Judson Creamery & Produce Co., North Jackson | 11.0 | 2.0 | 2.0 | 9.0 | 11.3 | Corn, cottonseed meal, alfalfa meal, oat middlings, hulls, salt, molasses |
| Quaker Dairy Feed with Molasses | 7385 | 5476 | Newcomb & Whitehorn, Columbus | 15.2 | 5.5 | 5.8 | 16.0 | 16.6 | Cottonseed meal, corn distillers' grains, ground grain screenings, oat shorts, oat hulls, molasses, 0.5% salt |
| Quaker Dairy Feed with Molasses | 7685 | 7088 | Eberts & Bro., North Vernon | 11.5 | 5.5 | 5.3 | 16.0 | 16.5 | Same as D 5476. 0.5% salt |
| Boss Feed | 8228 | 6385 | Probst & Kassebaum, Indianapolis | 10.2 | 3.0 | 3.6 | 8.0 | 9.0 | Cracked corn, oat hulls, oat shorts, corn feed meal, 1.7% salt. Hominy feed guaranteed but not identified |
| White Diamond Feed | 8231 | 6467 | Wm. Rouse & Son, Indianapolis | 10.0 | 3.2 | 3.7 | 8.0 | 9.2 | Cracked corn, corn feed meal, hominy feed, oat hulls, oat shorts, 0.6% salt |
| White Diamond Feed | 8231 | 7906 | Smith Grocery Co., Clinton | 8.9 | 3.2 | 3.6 | 8.0 | 12.9 | Same as D 6467. Salt not determined |
| White Diamond Feed | 8231 | 7955 | Wm. Rouse & Son, Indianapolis | 9.0 | 3.2 | 3.0 | 8.0 | 9.0 | Same as D 6467. Salt not determined |
| Schumaker Feed | 8234 | 5396 | James Hanna, Willow Branch | 9.2 | 3.2 | 4.5 | 10.0 | 11.2 | Hominy feed, corn feed meal, wheat middlings, cottonseed meal, ground barley, oat shorts, oat hulls, puffed rice, probably puffed wheat 0.2% salt. Corn guaranteed but not identified |
| Schumaker Feed | 8234 | 6032 | DeBolt & Niswonger, Monticello | 10.2 | 3.2 | 4.8 | 10.0 | 11.3 | Same as D 5396. 0.3% salt |
| Schumaker Feed | 8234 | 6267 | Holton Bros., Paricksburg | 8.9 | 3.2 | 4.4 | 10.0 | 11.0 | Same as D 5396. Salt not determined |
| Schumaker Feed | 8234 | 6265 | Ogle-Cook Grain Co., Hamlet | 9.6 | 3.2 | 4.4 | 10.0 | 11.5 | Same as D 5396. 0.2% salt |
| Schumaker Feed | 8234 | 6447 | Wolfgram Grain Co., Brownsville | 11.4 | 3.2 | 4.2 | 10.0 | 11.7 | Same as D 5396. Salt not determined |
| Schumaker Feed | 8234 | 7342 | W. C. Hall Milling Co., Brazil | 9.0 | 3.2 | 4.4 | 10.0 | 12.5 | Same as D 5396. Salt not determined |
| Schumaker Feed | 8234 | 7450 | O. L. Caudle Salem | 8.1 | 3.2 | 4.0 | 10.0 | 12.6 | Same as D 5396. Salt not determined |
| Schumaker Feed | 8234 | 7757 | Wm. Rouse & Son, Indianapolis | 7.7 | 3.2 | 4.7 | 10.0 | 12.6 | Same as D 5396. Salt not determined |
| Schumaker Feed | 8234 | 8140 | R. E. Teter, Tipton | 7.3 | 3.2 | 4.7 | 10.0 | 12.0 | Same as D 5396. Salt not determined |
| Market Top Feed | 8380 | 7119 | McCoy & Garten, Columbus | 10.3 | 3.0 | 3.0 | 9.0 | 10.5 | Cracked corn, barley, hominy feed, corn feed meal, wheat flour, wheat middlings, cottonseed meal, puffed wheat, puffed rice, oat shorts, oat hulls, molasses |
| Big Q Dairy Ration | 8458 | 6149 | Krause & Apfelbaum, Fort Wayne | 7.7 | 6.0 | 5.8 | 21.0 | 23.5 | Cottonseed meal, corn distillers' grains, gluten feed, linseed meal, corn feed meal, wheat middlings, bran, oat hulls, oat shorts, 0.9% salt |
| Big Q Dairy Ration | 8458 | 6379 | Krause & Apfelbaum, Auburn | 8.6 | 6.0 | 5.7 | 21.0 | 23.3 | Same as D 6149. 0.8% salt |
| Big Q Dairy Ration | 8458 | 7332 | A. Smith & Co., Sheridan | 8.9 | 6.0 | 5.3 | 21.0 | 22.9 | Same as D 6149. Salt not determined |
| Big Q Dairy Ration | 8458 | 7458 | O. L. Caudle, Salem | 7.7 | 6.0 | 5.5 | 21.0 | 22.2 | Same as D 6149. Salt not determined |
| Big Q Dairy Ration | 8458 | 8314 | W. D. Hurn Milling Co., Corydon Junction | 8.4 | 6.0 | 4.8 | 21.0 | 21.2 | Same as D 6149. Salt not determined |
| Ralston Purina Company, St. Louis, Mo. XX Good Feed with Molasses | 7879 | 7078 | John Hollowell, North Vernon | 15.4 | 1.5 | 2.4 | 9.0 | 9.7 | Cracked corn, rolled oats, alfalfa, molasses, 1% salt |
| Good Luck Feed with Molasses | 7880 | 6801 | Chas. W. Brizius Co., Evansville | 15.0 | 1.5 | 2.6 | 9.0 | 11.2 | Same as D 7078. 1.3% salt |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | Official Inspection | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified present but not guaranteed are classed as adulterants |
|--|--------|---------------------|--|--------------------|---------------------|-------|-------------------------|-------|--|
| | | | | | Guaranteed | Found | Guaranteed | Found | |
| Ralston Purina Company, St. Louis, Mo. | | | | | | | | | |
| Purina Cow Chow Feed | 8344 | 6538 | C. J. Castetter & Co., Goshen-- | 10.4 | 4.5 | 3.7 | 24.0 | 23.6 | Cottonseed meal, corn gluten feed, brewers' grains, alfalfa meal, molasses, 1.5% salt |
| Purina Cow Chow Feed | 8344 | 6561 | Polk's Sunlight Farm, Greenwood | 10.5 | 4.5 | 3.7 | 24.0 | 25.1 | Same as D 6538. 0.6% salt |
| Purina Cow Chow Feed | 8344 | 6903 | Rehmann-McCannon Co., Letts | 10.5 | 4.5 | 3.8 | 24.0 | 26.9 | Same as D 6538. 1.6% salt |
| Purina Cow Chow Feed | 8344 | 7323 | Lougray Bros. Milling & Grain Co., Monticello | 11.0 | 4.5 | 6.2 | 24.0 | 23.8 | Same as D 6538. Salt not determined |
| Purina Cow Chow Feed | 8344 | 7956 | National Military Home, Marion | 11.1 | 4.5 | 3.5 | 24.0 | 23.8 | Same as D 6538. Salt not determined |
| Rapier Sugar Feed Company, Owensboro, Ky. | | | | | | | | | |
| Rapier's Molasses-Alfalfa Hog Feed 243 | 6094 | 5792 | J. B. Young, Rockport | 13.4 | 2.5 | 3.2 | 10.0 | 14.2 | Alfalfa meal, ground grain and flaxseed screenings, molasses. |
| Rapier's Red Wing Horse and Mule Feed | 6738 | 5469 | Richards & Lawson, Shelbyville | 17.4 | 2.0 | 2.4 | 9.0 | 10.2 | Linseed meal, distillers' grains, charcoal and salvage wheat identified but not guaranteed |
| Rapier's Red Wing Horse and Mule Feed | 6738 | 6808 | Evansville Dry Malt & Feed Co., Evansville | 14.5 | 2.0 | 2.7 | 9.0 | 9.2 | Cracked corn, oats, alfalfa meal, molasses, 0.1% salt |
| Rapier's Pig Meal | 7072 | 5432 | J. C. Hisle, Madison | 15.7 | 2.5 | 3.2 | 12.0 | 13.6 | Same as D 5469. 0.9% salt |
| Rapier's Pig Meal | 7072 | 5489 | A. P. Kuhn, Bicknell | 7.9 | 2.5 | 4.6 | 12.0 | 14.0 | Alfalfa meal, trace wheat bran, distillers' grains, corn feed meal, linseed meal, ground grain and flaxseed screenings, molasses, 0.6% salt |
| Rapier's Pig Meal | 7072 | 5565 | Farmers Elevator Co., Kempton | 14.3 | 2.5 | 2.5 | 12.0 | 13.4 | Alfalfa meal, corn feed meal, linseed meal, grain screenings, molasses, 0.8% salt |
| Rapier's Pig Meal | 7072 | 5635 | Henry Schnur, Mount Vernon | 12.8 | 2.5 | 3.1 | 12.0 | 14.5 | Alfalfa meal, traces of linseed meal, corn feed meal, ground grain screenings, molasses, 1.9% salt. Wheat bran identified but not guaranteed |
| Rapier's Pig Meal | 7072 | 5840 | Louis E. Fisher, Greensburg | 11.8 | 2.5 | 3.2 | 12.0 | 15.2 | Same as D 5489. 1.1% salt. Charcoal identified but not guaranteed |
| Rapier's Pig Meal 244 | 7072 | 5841 | D. M. Blackmore, Greensburg | 12.7 | 2.5 | 2.8 | 12.0 | 13.6 | Same as D 5489. 0.9% salt. Charcoal, distillers' grains, ground salvage wheat identified but not guaranteed |
| Rapier's Pig Meal 245 | 7072 | 5926 | J. F. Collier, Mitchell | 13.9 | 2.5 | 3.0 | 12.0 | 14.4 | Same as D 5840. 0.8% salt |
| Rapier's Pig Meal 246 | 7072 | 5929 | Orleans Mill & Elevator Co., Orleans | 12.6 | 2.5 | 3.2 | 12.0 | 14.0 | Same as D 5840. Salt not determined |
| Rapier's Pig Meal | 7072 | 5947 | W. L. Skinner Grain Co., Dunkirk | 13.1 | 2.5 | 2.7 | 12.0 | 13.4 | Same as D 5840. 1% salt |
| Rapier's Pig Meal | 7072 | 6008 | Arnold & Nelson, Montpelier | 11.4 | 2.5 | 3.0 | 12.0 | 12.7 | Same as D 5565. 0.9% salt |
| Rapier's Pig Meal | 7072 | 6067 | Garrett & Funk, Liberty Center | 14.5 | 2.5 | 2.8 | 12.0 | 13.7 | Same as D 5565. 0.7% salt |
| Rapier's Pig Meal | 7072 | 6306 | Crescent Milling Co., Crothersville | 13.3 | 2.5 | 4.0 | 12.0 | 14.7 | Same as D 5565. 1% salt |
| | | | | | | | | | Same as D 5489. 0.9% salt |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number Inspection Official | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|---|----------------------------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|--|
| | | | | Guar- anteed | Found | Guar- anteed | Found | |
| Slick & Company, L. E., Bloomington, Ill. Slick's Safety First Hogmaker Feed 249 ----- | 8833 | Reid Bros. Coal & Feed Co., Fort Wayne ----- | 9.9 | 4.5 | 5.0 | 18.0 | 20.8 | Alfalfa meal, corn feed meal, wheat mid- dlings, wheat bran, linseed meal, tank- age, molasses |
| Slick's Safety First Hog Fattener Feed 249 ----- | 8834 | Reid Bros. Coal & Feed Co., Fort Wayne ----- | 9.4 | 5.0 | 5.6 | 13.0 | 16.5 | Alfalfa meal, corn feed meal, wheat mid- dlings, linseed meal, tankage, molasses |
| *Safety First Corn-O-Bran Horse Feed ----- | 6341 | Otto Lefforge, Rossville ----- | 10.5 | --- | 7.5 | --- | 11.9 | Corn meal, grits, germ, bran |
| Southern Seed Company, Louisville, Ky. Economy Horse and Mule Feed ----- | 4745 | Louis Hartman & Sons, New Albany ----- | 16.7 | 2.5 | 2.7 | 9.0 | 8.8 | Cracked corn, oats, alfalfa and clover meals, clipped oat by-product, molasses, 0.4% salt. Wheat bran guaranteed but not identified |
| Indiana Economy Dairy Feed ----- | 5423 | J. M. Lee & Co., New Albany ----- | 11.5 | 3.0 | 3.3 | 16.0 | 16.3 | Cottonseed meal, alfalfa, probably clover meal, brewers' grains, distillers' grains, clipped oat by-product, molasses, 0.6% salt. Wheat bran guaranteed but not identified |
| Indiana Economy Dairy Feed ----- | 5423 | Ideal Milling & Grain Co., Ridgeville ----- | 12.3 | 3.0 | 3.0 | 16.0 | 16.7 | Same as D 5775. 0.5% salt |
| Econo Horse and Mule Feed ----- | 8375 | Edgar Collin, New Albany ----- | 13.0 | 2.5 | 2.5 | 9.0 | 9.2 | Corn, oats, alfalfa meal, clover meal, cot- tonseed hulls and meal, flax plant by- product, molasses, 0.7% salt |
| Econo Horse and Mule Feed ----- | 8375 | Edgar Collin, New Albany ----- | 10.6 | 2.5 | 3.0 | 9.0 | 10.7 | Same as D 6314. Salt not determined |
| Econo Dairy Feed ----- | 8376 | I. B. Kline, Crawfordsville ----- | 11.8 | 3.0 | 3.4 | 16.0 | 17.7 | Brewers' and corn distillers' grains, alfalfa, probably clover meal, cottonseed meal, cottonseed hulls, trace flaxseed screenings, molasses, 0.5% salt |
| Econo Dairy Feed ----- | 8376 | Wm. Nading Grain Co., Greensburg ----- | 12.4 | 3.0 | 3.0 | 16.0 | 16.8 | Same as D 6916. Salt not determined |
| Econo Dairy Feed ----- | 8376 | A. L. Wheeler, Mooresville ----- | 8.5 | 3.0 | 3.9 | 16.0 | 18.6 | Same as D 6916. Salt not determined |
| Econo Dairy Feed ----- | 8376 | Louis Hartman & Sons, New Albany ----- | 10.2 | 3.0 | 3.7 | 16.0 | 17.8 | Same as D 6916. Salt not determined |
| Eagle Horse and Mule Feed ----- | 8548 | Scott & Co., Madison ----- | 14.5 | 2.0 | 2.2 | 9.0 | 9.0 | Cracked corn, oats, alfalfa, clover, brew- ers' grains, clipped oat by-product, cot- tonseed hulls, flax screenings, molasses, 0.5% salt |
| Ubiko Milling Company, The, Cincinnati, Ohio Union Grains, Ubiko, Biles Ready Dairy Ration ----- | 8197 | Probst & Kassebaum, Indianapolis ----- | 7.8 | 6.0 | 6.3 | 24.0 | 25.7 | Distillers' grains, cottonseed meal, linseed meal, wheat bran, wheat middlings, hominy feed, brewers' grains, malt sprouts, salt |

| Union Grain & Feed Company, The, Anderson, Ind. | | Omer G. Wieland, Richmond & Son, Muncie | | 14.3 | | 2.5 | | 2.9 | | 8.5 | | 11.6 | | Cracked corn, oats, alfalfa, molasses | |
|---|------|--|---|------|-----|-----|------|------|--|--|--|--|--|--|--|
| Union Horse Feed | 7151 | 6241 | Wesley Brand and M. L. Dagner | 13.2 | 2.5 | 3.0 | 8.5 | 10.2 | Same as D 6241 | Same as D 6241 | Same as D 6241 | Same as D 6241 | Same as D 6241 | Same as D 6241 | Same as D 6241 |
| Union Horse Feed | 7151 | 7031 | T. L. Williams, Muncie | 12.3 | 2.5 | 3.7 | 8.5 | 10.5 | Cottonseed meal, alfalfa meal, corn feed meal, ground grain screenings, molasses, 0.3% salt. | Cottonseed meal, alfalfa meal, corn feed meal, ground grain screenings, molasses, 0.3% salt. | Cottonseed meal, alfalfa meal, corn feed meal, ground grain screenings, molasses, 0.3% salt. | Cottonseed meal, alfalfa meal, corn feed meal, ground grain screenings, molasses, 0.3% salt. | Cottonseed meal, alfalfa meal, corn feed meal, ground grain screenings, molasses, 0.3% salt. | Cottonseed meal, alfalfa meal, corn feed meal, ground grain screenings, molasses, 0.3% salt. | Cottonseed meal, alfalfa meal, corn feed meal, ground grain screenings, molasses, 0.3% salt. |
| Union Dairy Feed | 7227 | 5727 | Clint Baker, Kokomo | 12.3 | 2.7 | 3.0 | 16.5 | 17.5 | not identified | not identified | not identified | not identified | not identified | not identified | not identified |
| Union Dairy Feed 250 | 7227 | 6322 | Yorktown Lumber Co., Yorktown | 12.3 | 2.7 | 1.7 | 16.5 | 11.0 | Cottonseed meal, alfalfa meal, corn feed meal, grain screenings, molasses, 0.4% salt. | Cottonseed meal, alfalfa meal, corn feed meal, grain screenings, molasses, 0.4% salt. | Cottonseed meal, alfalfa meal, corn feed meal, grain screenings, molasses, 0.4% salt. | Cottonseed meal, alfalfa meal, corn feed meal, grain screenings, molasses, 0.4% salt. | Cottonseed meal, alfalfa meal, corn feed meal, grain screenings, molasses, 0.4% salt. | Cottonseed meal, alfalfa meal, corn feed meal, grain screenings, molasses, 0.4% salt. | Cottonseed meal, alfalfa meal, corn feed meal, grain screenings, molasses, 0.4% salt. |
| Union Dairy Feed 251 | 7227 | 7045 | W. A. Clapper, Hartford City | 13.0 | 2.7 | 1.9 | 16.5 | 13.0 | Same as D 6322. | Same as D 6322. | Same as D 6322. | Same as D 6322. | Same as D 6322. | Same as D 6322. | Same as D 6322. |
| Union Dairy Feed | 7227 | 7018 | Ross Feed Store, Noblesville | 12.7 | 2.7 | 2.7 | 16.5 | 12.1 | Cottonseed meal, alfalfa meal, linseed meal, corn feed meal, grain screenings, molasses, salt | Cottonseed meal, alfalfa meal, linseed meal, corn feed meal, grain screenings, molasses, salt | Cottonseed meal, alfalfa meal, linseed meal, corn feed meal, grain screenings, molasses, salt | Cottonseed meal, alfalfa meal, linseed meal, corn feed meal, grain screenings, molasses, salt | Cottonseed meal, alfalfa meal, linseed meal, corn feed meal, grain screenings, molasses, salt | Cottonseed meal, alfalfa meal, linseed meal, corn feed meal, grain screenings, molasses, salt | Cottonseed meal, alfalfa meal, linseed meal, corn feed meal, grain screenings, molasses, salt |
| Union Dairy Feed 252 | 7227 | 7037 | Habig Bros., Indianapolis | 12.8 | 2.7 | 3.0 | 16.5 | 14.3 | Same as D 5729. | Same as D 5729. | Same as D 5729. | Same as D 5729. | Same as D 5729. | Same as D 5729. | Same as D 5729. |
| Van Meter, Flem, Jasonville, Ind. | 8050 | 7172 | Bloomfield Mill & Elevator Co., Bloomfield | 14.2 | 2.0 | 3.4 | 9.0 | 10.5 | Ground and whole corn, oats, alfalfa, molasses | Ground and whole corn, oats, alfalfa, molasses | Ground and whole corn, oats, alfalfa, molasses | Ground and whole corn, oats, alfalfa, molasses | Ground and whole corn, oats, alfalfa, molasses | Ground and whole corn, oats, alfalfa, molasses | Ground and whole corn, oats, alfalfa, molasses |
| Walsh & Company, James, Lawrenceburg, Ind. | 8024 | 5411 | John Crum, Milan | 6.4 | 6.0 | 8.0 | 21.8 | 23.7 | Traces of cracked corn, wheat middlings, cottonseed meal, distillers' grains, alfalfa meal, 1.5% salt | Traces of cracked corn, wheat middlings, cottonseed meal, distillers' grains, alfalfa meal, 1.5% salt | Traces of cracked corn, wheat middlings, cottonseed meal, distillers' grains, alfalfa meal, 1.5% salt | Traces of cracked corn, wheat middlings, cottonseed meal, distillers' grains, alfalfa meal, 1.5% salt | Traces of cracked corn, wheat middlings, cottonseed meal, distillers' grains, alfalfa meal, 1.5% salt | Traces of cracked corn, wheat middlings, cottonseed meal, distillers' grains, alfalfa meal, 1.5% salt | Traces of cracked corn, wheat middlings, cottonseed meal, distillers' grains, alfalfa meal, 1.5% salt |
| Kuhmele | 8024 | 6440 | Farmers Elevator Co., Jamestown | 8.9 | 6.0 | 9.0 | 21.8 | 26.4 | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. |
| Kuhmele | 8024 | 7282 | Probst & Kassbaum, Indianapolis | 9.4 | 6.0 | 8.1 | 21.8 | 25.4 | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. |
| Kuhmele | 8024 | 7445 | Chas. Jenkins, Georgetown | 8.4 | 6.0 | 8.2 | 21.8 | 23.5 | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. |
| Kuhmele | 8024 | 7040 | Probst & Kassbaum, Indianapolis | 6.7 | 6.0 | 8.2 | 21.8 | 24.6 | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. | Same as D 5411. |
| Morlac | 8341 | 7334 | Otto Leforge, Rossville | 8.8 | 6.0 | 8.6 | 21.8 | 23.0 | Cracked corn, wheat bran, cottonseed meal, corn distillers' grains, alfalfa, salt | Cracked corn, wheat bran, cottonseed meal, corn distillers' grains, alfalfa, salt | Cracked corn, wheat bran, cottonseed meal, corn distillers' grains, alfalfa, salt | Cracked corn, wheat bran, cottonseed meal, corn distillers' grains, alfalfa, salt | Cracked corn, wheat bran, cottonseed meal, corn distillers' grains, alfalfa, salt | Cracked corn, wheat bran, cottonseed meal, corn distillers' grains, alfalfa, salt | Cracked corn, wheat bran, cottonseed meal, corn distillers' grains, alfalfa, salt |
| Morlac | 8341 | 7999 | H. L. Hagee, Peru | 6.0 | 6.0 | 9.0 | 21.8 | 27.3 | Same as D 7334 | Same as D 7334 | Same as D 7334 | Same as D 7334 | Same as D 7334 | Same as D 7334 | Same as D 7334 |
| Kuhmele | 8306 | 8201 | G. W. Gaston Milling Co., Dupont | 7.0 | 6.0 | 5.4 | 21.8 | 25.3 | Corn, wheat middlings, cottonseed meal, brewers' dried grains, alfalfa meal, salt | Corn, wheat middlings, cottonseed meal, brewers' dried grains, alfalfa meal, salt | Corn, wheat middlings, cottonseed meal, brewers' dried grains, alfalfa meal, salt | Corn, wheat middlings, cottonseed meal, brewers' dried grains, alfalfa meal, salt | Corn, wheat middlings, cottonseed meal, brewers' dried grains, alfalfa meal, salt | Corn, wheat middlings, cottonseed meal, brewers' dried grains, alfalfa meal, salt | Corn, wheat middlings, cottonseed meal, brewers' dried grains, alfalfa meal, salt |
| Western Grain Products Company, West Hammond, Ill. | 7363 | 5519 | W. D. Henderson, Fort Wayne | 10.1 | 3.5 | 4.6 | 16.5 | 17.0 | Cottonseed meal, distillers' grains, malt sprouts, ground clipped oat by-product, ground grain screenings, molasses, 1% salt | Cottonseed meal, distillers' grains, malt sprouts, ground clipped oat by-product, ground grain screenings, molasses, 1% salt | Cottonseed meal, distillers' grains, malt sprouts, ground clipped oat by-product, ground grain screenings, molasses, 1% salt | Cottonseed meal, distillers' grains, malt sprouts, ground clipped oat by-product, ground grain screenings, molasses, 1% salt | Cottonseed meal, distillers' grains, malt sprouts, ground clipped oat by-product, ground grain screenings, molasses, 1% salt | Cottonseed meal, distillers' grains, malt sprouts, ground clipped oat by-product, ground grain screenings, molasses, 1% salt | Cottonseed meal, distillers' grains, malt sprouts, ground clipped oat by-product, ground grain screenings, molasses, 1% salt |
| Hammond Dairy Feed | 7363 | 5567 | Wm. Steeb, Crown Point | 11.1 | 3.5 | 4.1 | 16.5 | 17.2 | Same as D 5519. | Same as D 5519. | Same as D 5519. | Same as D 5519. | Same as D 5519. | Same as D 5519. | Same as D 5519. |
| Hammond Dairy Feed | 8254 | 6351 | McMahan Bros., Valparaiso | 13.8 | 3.5 | 4.9 | 16.5 | 15.6 | Cottonseed meal, distillers' grains, malt sprouts, clipped oat by-product, ground grain screenings, cococa shells, molasses, 1.5% salt | Cottonseed meal, distillers' grains, malt sprouts, clipped oat by-product, ground grain screenings, cococa shells, molasses, 1.5% salt | Cottonseed meal, distillers' grains, malt sprouts, clipped oat by-product, ground grain screenings, cococa shells, molasses, 1.5% salt | Cottonseed meal, distillers' grains, malt sprouts, clipped oat by-product, ground grain screenings, cococa shells, molasses, 1.5% salt | Cottonseed meal, distillers' grains, malt sprouts, clipped oat by-product, ground grain screenings, cococa shells, molasses, 1.5% salt | Cottonseed meal, distillers' grains, malt sprouts, clipped oat by-product, ground grain screenings, cococa shells, molasses, 1.5% salt | Cottonseed meal, distillers' grains, malt sprouts, clipped oat by-product, ground grain screenings, cococa shells, molasses, 1.5% salt |
| Hammond Dairy Feed | 8254 | 6411 | Flack Bros., East Chicago | 13.5 | 3.5 | 3.9 | 16.5 | 14.7 | Same as D 6351 | Same as D 6351 | Same as D 6351 | Same as D 6351 | Same as D 6351 | Same as D 6351 | Same as D 6351 |
| Hammond Dairy Feed | 8254 | 7300 | Wm. Steeb, Crown Point | 11.3 | 3.5 | 5.3 | 16.5 | 16.6 | Same as D 6351. | Same as D 6351. | Same as D 6351. | Same as D 6351. | Same as D 6351. | Same as D 6351. | Same as D 6351. |

* Not tagged

++ Not tagged. Labels furnished

210 Conflicting guarantees

250 700 lbs. removed from sale. Returned

251 1/2 ton removed from sale

252 1/2 ton removed from sale. Returned

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | Official Inspection | Sample secured from | Moisture per cent. | Crude fat | | Crude protein | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|--------|---------------------|---|--------------------|------------|-------|---------------|-------|---|
| | | | | | Guaranteed | Found | Guaranteed | Found | |
| Wilkinson & Company, T. B. Knightstown, Ind. Combination Dairy Feed | 7654 | 6255 | Manufacturers ----- | 10.4 | 3.0 | 3.6 | 11.0 | 12.2 | Crushed ear corn, oats, rye, cottonseed meal, salt |
| CALF MEALS | | | | | | | | | |
| Blatchford Calf Meal Factory, Waukegan, Ill. Blatchford's Calf Meal | 7267 | 5927 | John Dunn, Wolcott ----- | 8.0 | 5.0 | 7.8 | 24.0 | 24.0 | Traces of fenugreek, anise, cottonseed meal, locust bean meal, flaxseed meal, linseed meal, wheat and blood flours, barley, bean meal, pea meal, dried milk, cocoanut meal, rice polish, cocoa shells, 0.5% salt |
| Blatchford's Milk Mash | 7269 | 6988 | C. J. Loyd, Greensburg ----- | 9.2 | 4.0 | 4.5 | 20.0 | 19.6 | Fenugreek, anise, locust bean meal, flaxseed, wheat flour, barley meal, blood meal, bean meal, pea meal, rice polish, linseed meal, cocoa shells, cocoanut meal, cottonseed meal, dried milk, corn feed meal, oat meal, wheat middlings, meat meal, probably fish, bone meal, 1% salt. Limestone grit guaranteed but not identified |
| Hales & Edwards Company, Chicago, Ill. ++Red Horn Calf Meal | 8272 | 7559 | Hoosier Wholesale Grocery Co., South Bend ----- | 9.6 | 5.0 | 5.7 | 24.0 | 25.5 | Fenugreek, anise, flaxseed, wheat flour, locust bean meal, cottonseed meal, blood meal, bean meal, pea meal, cocoa shells, barley meal, rice polish, linseed meal, cocoanut meal, dried milk, salt |
| Purina Mills, Branch, Ralston Purina Company, St. Louis, Mo. Purina Calf Chow | 7872 | 5356 | Ralston Purina Co., Indianapolis ----- | 8.9 | 4.0 | 4.0 | 33.0 | 33.9 | Hominy feed, wheat starch, probably from low grade flour, dried blood, linseed meal |
| Ryde & Company, Chicago, Ill. Rydes Cream Calf Meal | 5496 | 6779 | Edw. F. Goeke Co., Evansville--- | 9.0 | 5.0 | 7.1 | 25.0 | 25.0 | Fenugreek, anise seed, cottonseed meal, wheat flour, flaxseed meal, carob beans, bean meal, probably lentil meal, cocoa shells, 1% salt |
| Rydes Cream Calf Meal | 5496 | 7376 | Guy M. Wells, Knox ----- | 9.4 | 5.0 | 6.5 | 25.0 | 24.5 | Same as D 6779. Salt not determined |
| Rydes Cream Calf Meal | 5496 | 7686 | Indiana Seed Co., Indianapolis--- | 8.7 | 5.0 | 5.5 | 25.0 | 24.8 | Same as D 6779. Salt not determined |
| Rydes Cream Calf Meal ²³ | 5496 | 7646 | Indiana Seed Co., Indianapolis--- | 9.2 | 5.0 | 4.6 | 25.0 | 25.2 | Same as D 6779. Salt not determined |
| ++Rydes Cream Calf Meal | 8855 | 7966 | Powell & Co., Fountain City--- | 8.4 | 5.0 | 6.2 | 25.0 | 25.4 | Ground flaxseed, wheat flour, locust bean meal, cottonseed meal, blood flour, beans, probably peas, cocoa shells, hominy feed, fenugreek, anise, salt |
| Security Remedy Company, Minneapolis, Minn. Security Calf Food Compound | 5973 | 7751 | Suckow Co., Franklin ----- | 8.3 | 4.5 | 2.4 | 9.8 | 15.7 | Locust bean meal, fenugreek, anise, ginger, oxide of iron, corn starch, wheat flour, wheat middlings, powdered milk, sugar, salt |

POULTRY MASH

| | | | | | | | | |
|--|------|---|------|-----|-----|------|------|---|
| American Hominy Company, Indianapolis, Ind. | 7845 | Chas. L. Stocker, Evansville---- | 6.7 | 4.0 | 4.3 | 12.0 | 12.9 | Corn germ meal, hominy feed, wheat bran and middlings, linseed meal, heneta grit |
| Homco Dry Mash ----- | 7845 | D. R. Murray, Clinton ----- | 8.5 | 4.0 | 5.4 | 12.0 | 16.1 | Corn germ meal, hominy feed, wheat bran, wheat middlings, linseed meal, Heneta grit guaranteed but not identified |
| Homco Dry Mash ----- | 6102 | Manufacturers ----- | 9.2 | 3.0 | 5.5 | 17.5 | 19.2 | Wheat bran, middlings, corn feed meal, alfalfa meal, linseed meal, meat scraps, charcoal, 0.5% salt |
| Bash & Company, C. E., Huntington, Ind. | 5302 | Manufacturers ----- | 8.7 | 2.0 | 3.4 | 12.0 | 13.7 | Wheat bran, middlings, corn feed meal, corn gluten feed, linseed oil meal, heneta grit |
| Busy-Biddy Egg Mash & Chick Grower ----- | 7270 | Little Crow Milling Co., Warsaw ----- | 8.3 | 4.0 | 4.7 | 19.0 | 18.7 | Anise, locust bean meal, flaxseed, wheat flour, rice polish, blood, linseed meal, cocoa shells, cocoanut meal, cottonseed meal, dried milk, alfalfa, bone meal, corn feed meal, oats, wheat bran and middlings, meat scraps, fish, salt, limestone grit. Fenugreek, capicum, barley meal, bean meal, pea meal guaranteed but not identified |
| Bauermeister Company, Inc., Chas. W., Terre Haute, Ind. | 7270 | Zelt Bros., Fort Wayne ----- | 7.8 | 4.0 | 5.0 | 19.0 | 20.1 | Fenugreek, anise, capicum, locust bean meal, flaxseed meal, probably wheat flour, rice polish, blood flour, barley meal, bean meal, probably pea meal, linseed oil meal, cocoa shell meal, cocoanut meal, cottonseed meal, dried milk, alfalfa meal, corn meal, oat meal, wheat bran and middlings, meat scraps, probably fish, bone meal, salt, limestone grit |
| Blachford's "Fill the Basket" Egg Mash ----- | 8321 | Manufacturers ----- | 9.1 | 3.0 | 3.9 | 18.0 | 22.9 | Wheat bran, middlings, oats, alfalfa, gluten meal, crushed corn, linseed meal, meat scraps, charcoal, molasses Same as D 5726 |
| Clover Leaf Flour Mills, Kokomo, Ind. †Clover Leaf Egg Mash ----- | 8321 | Manufacturers ----- | 8.0 | 3.0 | 4.9 | 18.0 | 20.1 | |
| Clover Leaf Egg Mash ----- | 4232 | Probst & Kassebaum, Indianapolis ----- | 10.9 | 2.5 | 4.6 | 11.0 | 11.7 | Alfalfa meal, wheat bran, wheat feed meal, corn bran, corn feed meal, beef scraps, linseed meal, 0.7% salt |
| Dickinson Company, The Albert, Chicago, Ill. | 8233 | C. B. Way, Laporte ----- | 9.1 | 4.0 | 4.3 | 15.0 | 15.0 | Wheat bran, middlings, corn feed meal, alfalfa meal, linseed meal, meat scraps, ground oats, oyster shells |
| Queen Poultry Mash ----- | | | | | | | | |
| Hales & Edwards Company, Chicago, Ill. | | | | | | | | |
| Red Comb Meat Mash (with Shell)--- | | | | | | | | |

† Before registration

†† Not tagged. Labels furnished

253 Relabeled with No. 8856. Conflicting guarantees

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|---|----------|--------------|-------------------------------------|--------------------|---------------------|-------|-------------------------|-------|--|
| | Official | Inspection D | | | Guaranteed | Found | Guaranteed | Found | |
| Haynes Milling Company, The, Portland, Ind. ----- | 5350 | 5535 | Weber & Purviance, Huntington | 8.6 | 2.0 | 3.0 | 12.0 | 13.2 | Wheat bran, wheat middlings, corn feed meal, corn gluten meal, linseed meal, heneta grit. Corn meal guaranteed but not identified |
| Henderson & Company, W. D., Fort Wayne, Ind. ----- | 5353 | 7108 | Manufacturers ----- | 9.1 | 3.0 | 4.2 | 14.0 | 17.6 | Wheat middlings, corn feed meal, alfalfa, linseed meal, beef scraps, charcoal, salt |
| Holser & Company, B. I., Walkerton, Ind. ----- | 5316 | 6297 | Finch Bros., North Liberty ----- | 9.7 | 3.0 | 4.7 | 14.0 | 17.2 | Oats, wheat bran, middlings, alfalfa meal, wheat feed meal, corn feed meal, corn bran, linseed meal, meat scraps |
| McCoy & Garten, Indianapolis, Ind. Eureka Poultry Mash ----- | 6572 | 6501 | Manufacturers ----- | 9.3 | 3.0 | 4.7 | 12.0 | 14.5 | Wheat bran, probably wheat feed meal, corn gluten meal, alfalfa, corn feed meal, trace linseed meal, meat scrap, 0.3% salt |
| Eureka Poultry Mash ----- | 6572 | 7002 | Batesville Roller Mills, Batesville | 9.6 | 3.0 | 4.4 | 12.0 | 15.9 | Wheat bran, corn, gluten meal, alfalfa, wheat feed meal, corn feed meal, meat scraps, salt. Linseed meal guaranteed but not identified |
| Ohio Valley Seed Company, Evansville, Ind. ----- | 5345 | 5963 | Manufacturers ----- | 7.4 | 3.5 | 3.1 | 14.0 | 14.3 | Wheat bran, middlings, ground corn, linseed meal, alfalfa meal, gluten meal, meat scraps, charcoal, heneta grit |
| Ossian Roller Mills, Ossian, Ind. Dry Mash Chick Feed ----- | 7554 | 6931 | Manufacturers ----- | 10.1 | 3.0 | 4.1 | 20.0 | 17.6 | Wheat bran and middlings, corn meal, corn gluten meal, beef scrap, charcoal, ground screenings |
| Park & Pollard Company, The, Boston, Mass. ----- | 7551 | 5908 | J. H. Williamson Co., Muncie.--- | 8.8 | 1.5 | 3.4 | 18.0 | 19.3 | Ground wheat, corn, kafir, oats, barley, buckwheat, wheat bran, wheat middlings, alfalfa, meat, blood, bone, probably fish, grit, 0.8% salt. Small amount of glass present. Beet pulp guaranteed but not identified |
| Park & Pollard Co. Lay or Bust Dry Mash ----- | 7551 | 6470 | Wm. Rouse & Son, Indianapolis | 10.3 | 1.5 | 3.2 | 18.0 | 19.4 | Ground wheat, corn, kafir, oats, barley, buckwheat, wheat bran, middlings, alfalfa, fish, meat, bone, pulverized limestone grit, 0.8% salt. Beet pulp guaranteed but not identified |
| Park & Pollard Co., Lay or Bust Dry Mash ²⁴ ----- | 7551 | 7581 | Pickering & Son, Anderson ----- | 7.9 | 1.5 | 3.8 | 18.0 | 17.6 | Wheat, corn, probably kafir, oats, probably barley, buckwheat, wheat bran and middlings, alfalfa, probably fish, meat, bone, beet pulp, salt, calcium carbonate. Appreciable quantity of glass present |

| | | | | | | | | | |
|---|------|------|---|------|-----|-----|------|------|---|
| Park & Pollard Company, The, Boston, Mass. Growing Feed | 8223 | 6430 | Wm. Rouse & Son, Indianapolis | 10.9 | 1.5 | 3.0 | 10.0 | 15.8 | Ground wheat, corn, kafir, oats, barley, buckwheat, alfalfa, meat meal, wheat bran and middlings, bone, pulverized limestone, 0.5% salt. Beet pulp guaranteed but not identified |
| Growing Feed | 8222 | 7987 | Pickering & Son, Anderson | 7.8 | 1.5 | 3.8 | 10.0 | 15.6 | Wheat, corn, kafir, oats, barley, buckwheat, alfalfa meal, beet pulp, wheat bran, middlings and screenings, salt, limestone |
| Lay or Bust (Dry Mash) | 8223 | 6517 | W. H. Baker, Goshen | 10.4 | 1.5 | 4.3 | 18.0 | 17.6 | Ground wheat, ground corn, oats, barley, buckwheat, alfalfa, probably kafir, wheat bran, middlings, ground screenings, fish, meat scrap, bone, salt, 7% limestone. Beet pulp guaranteed but not identified |
| Lay or Bust (Dry Mash) | 8223 | 7290 | South Bend Grain Co., South Bend | 9.4 | 1.5 | 3.8 | 18.0 | 18.3 | Ground wheat, corn, kafir, oats, barley, buckwheat, alfalfa, wheat bran, middlings, screenings, beet pulp, probably fish, meat, bone, salt. Calcium carbonate guaranteed but not identified |
| Lay or Bust (Dry Mash) ²⁵⁵ | 8223 | 7937 | Wm. Rouse & Son, Indianapolis | 8.6 | 1.5 | 3.5 | 18.0 | 16.9 | Same as D 7581 |
| Lay or Bust (Dry Mash) ²⁵⁶ | 8223 | 7983 | Belt Elevator & Feed Co., Indianapolis | 8.5 | 1.5 | 3.3 | 18.0 | 15.3 | Same as D 7581 |
| Lay or Bust (Dry Mash) [†] | 8223 | 8118 | Marion J. Yoder, Goshen | 8.7 | 1.5 | 4.2 | 18.0 | 20.8 | Wheat, corn, probably kafir, oats, alfalfa, wheat bran, middlings and screenings, beet pulp, probably fish, meat, bone, salt, calcium carbonate |
| Lay or Bust (Dry Mash) | 8223 | 8155 | Reid Bros. Coal & Feed Co., Fort Wayne | 8.5 | 1.5 | 3.6 | 18.0 | 16.8 | Same as D 8118 |
| Lay or Bust (Dry Mash) | 8223 | 8153 | Zelt Bros., Fort Wayne | 7.8 | 1.5 | 4.0 | 18.0 | 17.1 | Same as D 8118 |
| Lay or Bust (Dry Mash) | 8223 | 8274 | Bieker Bros., Hammond | 8.2 | 1.5 | 4.9 | 18.0 | 20.9 | Same as D 8118 |
| Purina Mills, Branch, Ralston Purina Company, St. Louis, Mo. ††Purina Chicken Fatena | 8585 | 6589 | Bloomington Milling Co., Bloomington | 9.0 | 5.0 | 7.0 | 9.0 | 15.1 | Ground oats, corn, kafir, barley, wheat middlings, trace linseed meal, corn germ meal |
| Purina Chicken Fatena | 8585 | 7598 | C. M. Barlow, Kokomo | 8.9 | 5.0 | 6.0 | 9.0 | 14.5 | Same as D 6580 |
| Purina Chicken Fatena | 8585 | 7852 | C. J. Loyd, Greensburg | 8.7 | 5.0 | 6.2 | 9.0 | 14.9 | Same as D 6580 |
| Ralston Purina Company, St. Louis, Mo. Purina Chicken Chowder Feed, with Charcoal | 7221 | 5358 | Ralston Purina Co., Indianapolis | 8.9 | 4.0 | 4.1 | 19.0 | 19.0 | Wheat bran, wheat middlings, alfalfa meal, corn meal, meat meal, charcoal. Salt and linseed meal guaranteed but not identified |
| Purina Chicken Chowder Feed, with Charcoal | 7221 | 6444 | Ralston Purina Co., Indianapolis | 9.6 | 4.0 | 4.3 | 19.0 | 18.5 | Wheat bran, middlings, corn meal, alfalfa meal, meat meal, linseed meal, charcoal, 1% salt |
| Purina Chicken Chowder Feed, with Charcoal | 7221 | 8185 | Zelt Bros., Fort Wayne | 8.4 | 4.0 | 4.4 | 19.0 | 19.4 | Same as D 6444 |

255 10 tons removed from sale. Returned
256 1 ton removed from sale. Returned

†† Not tagged. Labels furnished
254 300 lbs. removed from sale. Returned

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|----------|------------|--|--------------------|---------------------|-------|-------------------------|-------|--|
| | Official | Inspection | | | Guaranteed | Found | Guaranteed | Found | |
| Ralston Purina Company, St. Louis, Mo. ††Purina Chicken Fatena | 8585 | 7156 | Fountain Supply Co., Veedersburg | 9.6 | 5.0 | 6.2 | 9.0 | 14.4 | Ground corn, ground oats, probably kafir meal, wheat middlings, corn germ meal, linseed meal |
| Steckley, George, Kendallville, Ind. Poultry Mash | 3489 | 6505 | Manufacturers | 9.7 | 4.5 | 5.9 | 16.0 | 23.6 | Wheat bran, middlings, corn feed meal, gluten feed, beef scraps, linseed meal |
| Poultry Mash | 3489 | 7598 | Manufacturers | 8.9 | 4.5 | 5.0 | 16.0 | 24.0 | Same as D 6505 |
| Union Feed & Poultry Company, Lafayette, Ind. Union Poultry Mash | 7184 | 7764 | Manufacturers | 8.3 | 3.5 | 4.7 | 12.0 | 16.8 | Oats, wheat bran, wheat middlings, corn gluten feed, corn feed meal, alfalfa, linseed meal, blood flour, beef scraps, wheat screenings, charcoal |
| Wilkinson, A. E., New Castle, Ind. Wilkinson's Henola Mash | 5677 | 6548 | Manufacturers | 9.7 | 2.0 | 4.1 | 12.0 | 13.3 | Wheat bran, middlings, corn gluten meal, linseed oil meal, corn feed meal, Heneta |
| Wilkinson's Henola Mash | 5677 | 7980 | Manufacturers | 7.8 | 2.0 | 2.9 | 12.0 | 15.7 | grit guaranteed but not identified |
| Wilkinson's Henola Mash | 5677 | 8349 | Manufacturers | 7.3 | 2.0 | 3.0 | 12.0 | 15.3 | Wheat bran, middlings, corn gluten meal, linseed meal, corn feed meal, heneta grit |
| POULTRY AND SCRATCH FEEDS, WITHOUT GRIT | | | | | | | | | |
| American Hominy Company, Indianapolis, Ind. Homco Superior Scratch | 7216 | 5913 | C. H. Ellis, Muncie | 10.3 | 2.5 | 3.2 | 10.5 | 10.9 | Wheat, cracked corn, kafir, barley, buckwheat, sunflower seed, corn germ cake (pea size) |
| Homco Scratch Feed without Grit | 7217 | 6768 | G. H. Stunkel, Haubstadt | 8.8 | 2.5 | 3.7 | 10.0 | 10.8 | Wheat, corn, barley, corn germ meal, kafir, milo, sunflower seed. 2.3% lime-stone grit identified but not guaranteed |
| Homco Standard Scratch Feed | 7763 | 5391 | Chas. Johnson, Sullivan | 10.8 | 2.5 | 4.0 | 9.0 | 9.0 | Wheat, corn, kafir, barley, whole wheat screenings |
| Homco Standard Scratch Feed | 7763 | 7256 | South Bend Grain Co., South Bend | 10.0 | 2.5 | 4.0 | 9.0 | 10.9 | Same as D 5591 |
| Homco Poultry Developer | 8491 | 6682 | Richards & Lawson, Shelbyville | 9.6 | 3.0 | 3.1 | 11.0 | 12.1 | Wheat, cracked corn, kafir, corn germ meal, buckwheat |
| ††Standard Scratch Feed | 8755 | 7759 | E. H. Heaton, Indianapolis | 9.1 | 2.5 | 4.1 | 9.0 | 11.5 | Wheat, corn, kafir, oats, barley, wheat screenings |
| ††Hexite Scratch Feed | 8757 | 7566 | Cash Flour & Feed Store, South Bend | 10.0 | 2.5 | 3.6 | 10.0 | 11.4 | Wheat, corn, kafir, oats, barley, corn germ meal, sunflower seed |

| | | | | | | | | | |
|---|------|------|---|------|-----|-----|------|------|--|
| American Honey Company, Indianapolis, Ind. Hixite Scratch Feed | 8757 | 7761 | E. H. Heaton, Indianapolis | 9.1 | 2.5 | 3.6 | 10.0 | 15.5 | Wheat, corn, kafir, oats, barley, corn germ meal, sunflower seed. Approx. 4.99% limestone grit determined but not guaranteed |
| American Milling Company, Peoria, Ill. Sucrone Scratch Feed | 6159 | 5582 | Sullivan Mill & Elevator Co., Sullivan | 12.0 | 2.5 | 3.1 | 10.0 | 10.8 | Wheat, corn, kafir, barley, buckwheat, sunflower seed. Linseed meal guaranteed but not identified. Oats, approx. 1/2% weed seeds identified but not guaranteed |
| Cluck Cluck Scratch Feed | 8241 | 5821 | New Albany Milling Co., New Albany | 13.2 | 2.5 | 3.5 | 10.0 | 10.3 | Wheat, cracked corn, kafir, milo, barley, oats, buckwheat, sunflower seed |
| Sucrone Scratch Feed | 8242 | 7809 | Ohio Valley Seed Co., Evansville | 10.4 | 2.5 | 3.1 | 10.0 | 12.6 | Wheat, corn, kafir, barley, oats, buckwheat, sunflower seed |
| Tip Top Scratch Feed | 8243 | 6224 | Charlestown Milling Co., Charlestown | 11.6 | 2.5 | 4.2 | 10.0 | 10.2 | Wheat, cracked corn, kafir, barley, oats, sunflower seed, wild buckwheat |
| Ashbrook Company, The J. S., Mattoon, Ill. Peerless Scratch Feed | 4181 | 5722 | Clover Leaf Flour Mill, Kokomo | 11.2 | 3.6 | 3.2 | 10.0 | 11.4 | Wheat, cracked corn, kafir, milo, oats, buckwheat, sunflower, linseed cake |
| Peerless Scratch Feed | 4181 | 6878 | John Lee & Son, Kokomo | 10.4 | 3.6 | 3.3 | 10.0 | 10.7 | Same as D 5722 |
| Peerless Scratch Feed | 4181 | 7180 | Bloomfield Mill & Elevator Co., Bloomfield | 10.7 | 3.6 | 3.2 | 10.0 | 10.1 | Same as D 5722 |
| Diamond A. Scratch Feed | 7504 | 5664 | Naas-Sanderson & Co., Evansville | 11.4 | 2.5 | 3.0 | 9.0 | 10.9 | Wheat, corn, kafir, barley, milo, oats, buckwheat, sunflower seed |
| Diamond A. Chick Feed | 8277 | 5657 | Ohio Valley Seed Co., Evansville | 11.5 | 3.0 | 3.0 | 10.0 | 10.4 | Cracked corn, wheat, kafir, milo |
| Diamond A. Chick Feed | 8277 | 6851 | Ohio Valley Seed Co., Evansville | 10.5 | 3.0 | 3.0 | 10.0 | 10.6 | Same as D 5657 |
| Diamond A. Chick Feed | 8277 | 7215 | Geo. M. Jordan, Vincennes | 10.1 | 3.0 | 3.1 | 10.0 | 10.5 | Same as D 5657 |
| Badenoch Company, J. J., Chicago, Ill. C-er-lay Poultry Feed No Grit | 6640 | 5511 | Wiegman & Zelt, Fort Wayne | 12.0 | 2.5 | 3.6 | 9.5 | 11.4 | Wheat, cracked corn, kafir, barley, oats, milo, sunflower seed, charcoal. 10.4% screenings, including shriveled wheat (6.1%), flaxseed, weed seeds and inert materials (4.3%) |
| C-er-lay Poultry Feed No Grit | 6640 | 6409 | Magnot Bros., Hammond | 9.7 | 2.5 | 4.3 | 9.5 | 10.8 | Wheat, cracked corn, kafir, barley, oats, milo, sunflower seed, charcoal |
| C-er-lay Fine Chick No Grit | 6643 | 6414 | Jay Grain Co., Elwood | 11.0 | 2.5 | 3.6 | 9.5 | 10.7 | Cracked corn, wheat, kafir, millet seed, charcoal |
| Daily Egg No Grit | 6781 | 6987 | Benifel & Carmony, Shelbyville | 10.2 | 2.5 | 4.1 | 9.5 | 10.8 | Wheat, cracked corn, kafir, barley, milo, oats, wild buckwheat, sunflower seed, grain screenings |
| Daily Egg No Grit | 6781 | 7034 | S. R. Snell, Muncie | 11.7 | 2.5 | 3.4 | 9.5 | 11.8 | Wheat, cracked corn, kafir, barley, milo, wild buckwheat, sunflower seed, whole grain and flaxseed screenings. Rye guaranteed but not identified |
| Daily Egg No Grit | 6781 | 7079 | Eberts & Bro., North Vernon | 9.6 | 2.5 | 4.4 | 9.5 | 12.2 | Wheat, cracked corn, kafir, rye, barley, milo, wild buckwheat, sunflower seeds, whole grain screenings. Charcoal guaranteed but not identified |
| Daily Egg No Grit | 6781 | 7347 | Indiana Seed Co., Indianapolis | 10.1 | 2.5 | 3.4 | 9.5 | 12.1 | Same as D 7079 |

255 6 1/2 tons removed from sale. Labels 6640 replaced by No. 6781

++ Not tagged. Labels furnished
257 Relabeled No. 8242

| | | | | | | | | | |
|--|------|------|---------------------------------------|------|-----|-----|------|------|--|
| Dixie Mills Company, East St. Louis, Ill. Dixie Hen Feed 260 | 6972 | 6822 | W. H. Small & Co., Evansville | 10.6 | 3.0 | 3.5 | 10.0 | 11.5 | Cracked corn, wheat, milo, sunflower seed, kafir and barley guaranteed but not identified. Oats and emmer identified but not guaranteed |
| Dixie Hen Feed 261 | 6972 | 6853 | Ohio Valley Seed Co., Evansville | 9.9 | 3.0 | 3.4 | 10.0 | 11.3 | Wheat, cracked corn, kafir, milo, sunflower seed. Barley guaranteed but not identified. Emmer and oats identified but not guaranteed |
| Dixie Hen Feed 262 | 6972 | 6941 | Weise-Welborn Grain Co., Princeton | 10.3 | 3.0 | 3.9 | 10.0 | 11.7 | Same as D 6853 |
| Polo Hen Feed | 7019 | 6388 | Probst & Kassebaum, Indianapolis | 10.5 | 3.0 | 3.4 | 10.0 | 11.2 | Wheat, kafir, milo, barley, sunflower seed, wheat screenings. Corn guaranteed but not identified. Emmer identified but not guaranteed |
| Dixie Chick Feed 263 | 7359 | 6821 | W. H. Small & Co., Evansville | 10.2 | 3.0 | 5.9 | 10.0 | 11.2 | Wheat, cracked corn, kafir, milo, whole screenings from wheat and flax |
| Dixie Chick Feed 263 | 7359 | 6868 | Henry Schmur, Mount Vernon | 9.9 | 3.0 | 5.4 | 10.0 | 12.4 | Same as D 6821 |
| Dixie Chick Feed 263 | 7359 | 6923 | Winslow Milling Co., Winslow | 9.0 | 3.0 | 7.1 | 10.0 | 12.9 | Same as D 6821 |
| Polo Hen Feed | 8262 | 7368 | Ohio Valley Seed Co., Evansville | 9.6 | 3.0 | 2.5 | 10.0 | 12.2 | Wheat, corn, kafir, milo, barley, emmer, sunflower seed, wheat screenings |
| Dixie Hen Feed | 8263 | 7398 | W. H. Small & Co., Evansville | 9.9 | 3.0 | 2.8 | 10.0 | 10.9 | Wheat, cracked corn, kafir, milo, barley, oats, emmer, sunflower seed |
| Early & Daniel Company, The, Cincinnati, Ohio Eadan Chick Food 264 | 4433 | 6942 | Scarlet & Pope, West Baden | 10.5 | 2.5 | 3.5 | 10.0 | 9.9 | Cracked wheat, corn, oats, barley, trace screenings from clover seed |
| *Eadan Chick Feed | 6202 | | J. W. Marsh, East Enterprise | 12.3 | -- | 3.3 | -- | 9.7 | Cracked wheat, corn, kafir, milo, hulled oats, millet |
| Tuxedo Scratch | 4003 | 5402 | H. W. Holtegel, Lawrenceburg | 11.2 | 2.5 | 3.2 | 10.0 | 10.6 | Wheat, corn, kafir, oats, barley, sunflower seed. Barley identified but not guaranteed |
| Eadan Scratch Feed (No Grit) | 5822 | 5404 | Geo. Neimeyer & Son, Dillsboro | 11.9 | 2.5 | 3.2 | 10.0 | 10.2 | Cracked corn, wheat, kafir, oats, barley, sunflower seed, buckwheat. Kye guaranteed but not identified |
| Eadan Scratch Feed (No Grit) | 5822 | 7006 | Wilbur J. Schrader, Batesville | 11.0 | 2.5 | 3.7 | 10.0 | 10.5 | Wheat, cracked corn, kafir, milo, oats, rye, barley, buckwheat, sunflower seed |
| Edinger & Company, Louisville, Ky. †Arrow Chick Feed (No Grit) | 6693 | 5880 | O. L. Cauble, Pekin | 11.1 | 2.7 | 4.7 | 10.5 | 11.0 | Cracked wheat, corn, kafir, milo, millet, wheat screenings |
| Arrow Hen Feed (No Grit) | 6698 | 6315 | L. Thorn & Sons, New Albany | 9.7 | 3.0 | 3.7 | 10.0 | 10.8 | Wheat, cracked corn, traces of kafir and milo, barley, clipped oats, sunflower seeds |
| Edwards & Loomis Company, Chicago, Ill. | 6503 | 7264 | South Bend Grain Co., South Bend | 10.3 | 2.5 | 3.5 | 10.0 | 12.2 | Wheat, cracked corn, kafir, peas, millet, hemp seed, buckwheat |
| Pound Squab Pigeon Feed No Grit | | | | | | | | | |
| Feed Products Milling Company, Chicago, Ill. | | | | | | | | | |
| Kukoo Scratch Feed No Grit | 8276 | 6846 | Ohio Valley Seed Co., Evansville | 11.2 | 2.5 | 3.7 | 10.0 | 12.1 | Wheat, cracked corn, kafir, barley, oats, sunflower seed |

* Not tagged

† Not tagged. Labels furnished

259 Relabeled with No. 5647

260 9 7/2 tons removed from sale. Relabeled No. 8633

261 2 1/2 tons returned to mfrs.

262 5 3/10 tons removed from sale. Relabeled No. 8633

263 Conflicting guarantees

264 Conflicting guarantees. Relabeled No. 5863

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|----------|------------|-------------------------------------|--------------------|---------------------|-------|-------------------------|-------|---|
| | Official | Inspection | | | Guaranteed | Found | Guaranteed | Found | |
| Feed Products Milling Company, Chicago, Ill. Golden Egg Scratch Feed No Grit---- | 8359 | 6845 | Ohio Valley Seed Co., Evansville | 11.3 | 2.5 | 3.4 | 10.0 | 12.2 | Cracked corn, oats, barley, kafir, wheat, buckwheat, sunflower seed |
| Ferger Grain Company, The, Cincinnati, Ohio Columbia Scratch Grains 265----- | 5356 | 7037 | Chas. W. Curtis & Co., Aurora | 10.2 | 3.0 | 4.4 | 10.0 | 10.9 | Wheat, cracked corn, kafir, oats, barley, sunflower seed. Buckwheat guaranteed but not identified. Wild weed and flaxseeds and approx. 5.8% screenings consisting of wild buckwheat, flaxseed and pig weed identified but not guaranteed |
| *Columbia Chick ----- | --- | 6198 | J. W. Chittenden, Markland--- | 10.7 | --- | 6.3 | --- | 12.4 | Cracked wheat and corn, oats, flaxseed, large amount of misc. weed seeds |
| Gandy & Company, O., South Whitley, Ind., Standard A. Brand Poultry Feed----- | 4748 | 7163 | Acme Grain Co., North Manchester | 11.0 | 2.5 | 3.4 | 9.5 | 11.9 | Wheat, cracked corn, kafir, barley, oats, millet, buckwheat, sunflower seed Same as D 7163 |
| Standard A. Brand Poultry Feed----- | 4748 | 8072 | Manufacturers | 8.4 | 2.5 | 3.7 | 9.5 | 11.4 | |
| Gas City Elevator Company, Gas City, Ind. Hen Feed ----- | 7147 | 6054 | Manufacturers | 12.1 | 2.5 | 3.4 | 9.0 | 10.3 | Wheat, cracked corn, kafir, milo, oats, sunflower seed. Charcoal identified but not guaranteed Same as D 6054 |
| Hen Feed ----- | 7147 | 6399 | Manufacturers | 11.4 | 2.5 | 4.3 | 9.0 | 9.1 | |
| Graft, C. V., Winchester, Ind. Imperial Scratch Feed ----- | 7807 | 7024 | Manufacturer | 10.0 | 2.5 | 3.0 | 10.0 | 9.9 | Wheat, cracked corn, kafir, milo, barley, cane seed, buckwheat, sunflower seed |
| Hales & Edwards Company, Chicago, Ill. Cackle Poultry Feed (No Grit)----- | 7466 | 6466 | Wm. Rouse & Son, Indianapolis | 11.1 | 2.5 | 3.3 | 10.0 | 11.1 | Wheat, cracked corn, kafir, milo, barley, oats, sunflower seed |
| Red Comb Poultry Feed (No Grit)----- | 7673 | 6646 | M. C. Strole, Terre Haute | 11.8 | 2.5 | 3.0 | 10.0 | 11.5 | Wheat, corn, oats, barley, kafir, buckwheat, sunflower seed |
| Haynes Milling Company, The, Portland, Ind. "The U. B. Egg Producer"----- | 6918 | 7689 | R. J. Barnes & Co., Dunkirk--- | 10.5 | 2.5 | 2.8 | 9.5 | 9.9 | Wheat, cracked corn, kafir, barley, buckwheat, sunflower seeds |
| U. B. Scratch Feed ----- | 8218 | 6836 | Manufacturers | 10.8 | 2.5 | 2.6 | 9.5 | 10.7 | Wheat, cracked corn, oats, barley, buckwheat, screenings, milo |

| | | | | | | | | |
|------|------|---|------|-----|-----|------|------|--|
| 5814 | 6263 | Manufacturers ----- | 9.8 | 2.5 | 3.8 | 9.5 | 10.5 | Wheat, cracked corn, kafir, oats, rye, buckwheat, sunflower seed. Approx. 3.6% limestone grit identified but not guaranteed. Linseed cake and oyster shells guaranteed but not identified |
| 3421 | 5911 | W. W. Thornburg, Farmland--- | 10.9 | 3.0 | 3.1 | 10.5 | 10.3 | Wheat, corn, kafir, oats, barley, cane, sunflower seed, grain screenings. Buckwheat and linseed oil cake guaranteed but not identified |
| 3421 | 6029 | Debolt & Niswonger, Monroeville ----- | 10.9 | 3.0 | 3.3 | 10.5 | 11.6 | Wheat, cracked corn, kafir, oats, barley, cane seed, buckwheat, sunflower seed, ground screenings. Linseed oil cake guaranteed but not identified |
| 5993 | 6031 | Hipskind Conrad Co., Wabash--- | 11.6 | 3.5 | 3.4 | 10.0 | 12.3 | Wheat, corn, kafir, milo, oats, barley, buckwheat, sunflower seed |
| 8109 | 6894 | Clint Stroud, Mt. Vernon ----- | 9.8 | 2.5 | 3.2 | 10.0 | 10.0 | Wheat, cracked corn, oats, kafir, milo, corn germ meal, sunflower seed. approx. 3% oyster shell. Approx. 2.4% limestone grit identified but not guaranteed |
| 8109 | 7219 | Manufacturers ----- | 9.6 | 2.5 | 2.3 | 10.0 | 10.6 | Wheat, cracked corn, kafir, oats, milo, sunflower seed. approx. 4.8% oyster shells. Approx. 1.2% limestone grit identified but not guaranteed |
| 8109 | 7730 | Geo. M. Claypole, Evansville--- | 9.1 | 2.5 | 3.1 | 10.0 | 10.5 | Wheat, corn, kafir, oats, milo, sunflower seed, 3.2% oyster shells |
| 5107 | 7473 | Manufacturers ----- | 10.0 | 2.5 | 3.5 | 8.0 | 10.4 | Wheat, cracked corn, kafir, oats, barley, milo, buckwheat, sunflower seed, charcoal |
| 6143 | 7044 | Manufacturers ----- | 10.7 | 2.5 | 3.1 | 10.0 | 8.5 | Wheat, cracked corn, kafir, barley, oats, sunflower seed, charcoal. approx. 2.6% oyster shells. Approx. 1.5% limestone grit identified but not guaranteed |
| 5125 | 6031 | Manufacturers ----- | 10.9 | 2.5 | 2.8 | 10.0 | 10.1 | Wheat, cracked corn, kafir, milo, barley, oats, millet, trace misc. weed seeds |
| 8063 | 7227 | McCoy & Company, U. G., Vincennes, Ind. ----- | 9.8 | 3.0 | 3.5 | 8.0 | 9.9 | Wheat, cracked corn, oats, kafir, sunflower seed, charcoal. approx. 2.6% oyster shells |
| 5371 | 6474 | McCoy & Garten, Indianapolis, Ind. Eureka Hen Feed ----- | 11.3 | 2.5 | 3.7 | 10.0 | 10.4 | Wheat, cracked corn, kafir, milo, oats, barley, buckwheat, sunflower seed |
| 7414 | 6316 | McMahan & Leib Company, Anderson, Ind. ----- Royal Star Chick Feed ²⁶⁶ ----- | 9.1 | 2.0 | 3.9 | 9.0 | 9.7 | Wheat, cracked corn, kafir, millet, trace charcoal. Oyster shells guaranteed but not identified. Approx. 7.9% limestone grit identified but not guaranteed |
| 7978 | 6277 | National Oats Company, St. Louis, Mo. Nutro Hen Feed ----- | 10.3 | 3.0 | 3.7 | 10.0 | 10.5 | Wheat, cracked corn, kafir, milo |

200 Conflicting guarantees. Relabeled No. 8511

* Not tagged
265 1400 lbs. removed from sale. Returned

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|----------|------------|--|--------------------|---------------------|-------|-------------------------|-------|---|
| | Official | Inspection | | | Guaranteed | Found | Guaranteed | Found | |
| Ohio Valley Seed Company, Evansville, Ind. | 6303 | 5332 | Manufacturers ----- | 11.4 | 3.0 | 2.9 | 10.0 | 11.7 | Wheat, cracked corn, kafir, milo, oats, barley, sunflower seed, charcoal |
| Oswego Milling Company, Oswego, N. Y. | 8601 | 7259 | South Bend Grain Co., South Bend ----- | 10.4 | 1.5 | 3.1 | 10.0 | 12.3 | Wheat, cracked corn, kafir, barley, milo, oats, buckwheat |
| Pontiac Scratch Feed ----- | 6888 | 6463 | Manufacturers ----- | 11.4 | 2.0 | 2.8 | 7.5 | 10.4 | Corn, oats, buckwheat, whole wheat screenings |
| Pancost Milling Company, Elkhart, Ind. Chick Food ----- | 7855 | 7580 | Pickering & Son, Anderson ----- | 9.8 | 1.5 | 2.5 | 10.0 | 11.5 | Wheat, corn, kafir, milo, barley, oats, buckwheat, sunflower seed |
| Park & Pollard Company, The, Boston, Mass. Screened Scratch Feed ----- | 8423 | 6434 | Union Feed & Poultry Co., Lafayette ----- | 10.9 | 2.0 | 3.4 | 11.0 | 14.6 | Cracked wheat, corn, kafir, milo, millet, hulled oats, fish |
| Park & Pollard Company of Illinois, The, Chicago, Ill. Baby Buster Chick Feed ----- | 8423 | 6500 | Wm. Rouse & Son, Indianapolis Belt Elevator & Feed Co., Indianapolis ----- | 9.7 | 2.0 | 4.1 | 11.0 | 15.6 | Same as D 6434 |
| Baby Buster Chick Feed ----- | 8424 | 7396 | Indianapolis ----- | 10.2 | 1.5 | 2.6 | 10.0 | 11.1 | Wheat, cracked corn, kafir, barley, milo, buckwheat, sunflower seed |
| Red Ribbon Scratch Feed ----- | 8425 | 6453 | Wm. Rouse & Son, Indianapolis ----- | 10.4 | 2.0 | 3.5 | 10.0 | 10.6 | Wheat, corn, kafir, milo, millet seed |
| Intermediate Chick Feed ----- | 8425 | 7021 | J. H. Williamson Co., Muncie ----- | 10.3 | 1.5 | 2.9 | 10.0 | 11.1 | Wheat, cracked corn, kafir, milo, oats, millet, buckwheat |
| Peru Milling Company, Peru, Ind. Peru Poultry Feed ----- | 7523 | 8303 | Manufacturers ----- | 9.6 | 2.5 | 4.0 | 10.0 | 10.7 | Wheat, corn, kafir, oats, cane seed, sunflower seed, 1.1% oyster shells |
| Peters Mill Company, M. C., Omaha, Neb. Peters' Red Feather Chick Feed ----- | 7312 | 6477 | Hurst & Co., Indianapolis ----- | 11.1 | 1.5 | 3.1 | 10.0 | 10.1 | Cracked wheat, corn, millet |
| Prairie State Milling Company, Chicago, Ill. Red Crown Scratch Feed, No Grit ----- | 7255 | 8273 | Kusmahl Feed & Roofing Co., Hammond ----- | 9.9 | 2.5 | 3.8 | 10.0 | 11.6 | Wheat, corn, barley, oats, wild buckwheat, sunflower seed |
| Prater-Mottier Company, Terre Haute, Ind. Praters A Scratch Feed ----- | 7612 | 7244 | Manufacturers ----- | 10.5 | 3.0 | 3.9 | 8.0 | 9.9 | Wheat, cracked corn, kafir, barley, sunflower seed |
| Purina Mills, Branch, Ralston Purina Company, St. Louis, Mo. Purina Scratch Feed ----- | 7827 | 7138 | Farmers Supply Co., Spencer ----- | 10.0 | 2.5 | 2.6 | 10.0 | 10.8 | Wheat, cracked corn, kafir, barley, milo, sunflower seeds. Buckwheat identified but not guaranteed |

| | | | | | | | | | |
|--|------|------|--|------|-----|-----|------|------|--|
| Purina Mills, Branch, Ralston Purina Company, St. Louis, Mo. | 8004 | 6419 | Harting & Co., Elwood | 10.0 | 2.5 | 3.0 | 10.0 | 9.8 | Cracked wheat, corn, kafir, milo, millet |
| Purina Chick Feed | 8003 | 6435 | Union Feed & Poultry Co., Lafayette | 10.9 | 2.5 | 2.9 | 10.0 | 9.8 | Same as D 6419 |
| Purina Chick Feed | 8004 | 6879 | John Fee & Son, Kokomo | 9.6 | 2.5 | 3.0 | 10.0 | 11.0 | Same as D 6419 |
| Purina Chick Feed | 8004 | 6885 | Kellner & Callahan, Kusselcher | 9.1 | 2.5 | 3.1 | 10.0 | 10.8 | Same as D 6419 |
| Quaker Oats Company, The, Chicago, Ill. | 4876 | 7088 | McCoy & Garten, Indianapolis | 9.7 | 2.5 | 3.3 | 10.0 | 13.0 | Wheat, cracked corn, kafir, buckwheat, sunflower seed. Oats and barley identified but not guaranteed |
| Eureka Hen Feed (Without Grit) | 5710 | 6446 | Wolfgram Grain Co., Brownsburg | 12.4 | 2.5 | 3.7 | 10.0 | 10.7 | Wheat, cracked corn, kafir, milo, oats, barley, sunflower seed, whole wheat screenings |
| ††Big Egg Scratch Grains Without Grit | 5710 | 7028 | J. C. Neddeman, Sunman | 11.1 | 2.5 | 3.2 | 10.0 | 10.2 | Wheat, cracked corn, kafir, oats, barley, sunflower seed, trace whole wheat screenings. Buckwheat identified but not guaranteed |
| Big Egg Scratch Grains Without Grit | 5710 | 7028 | J. C. Neddeman, Sunman | 11.1 | 2.5 | 3.2 | 10.0 | 10.2 | Wheat, cracked corn, kafir, milo, barley, sunflower seed |
| Schumacher Scratch Grains (Without Grit) | 5731 | 5534 | Weber & Purviance, Huntington | 12.3 | 2.5 | 3.4 | 10.0 | 10.4 | Wheat, cracked corn, kafir, milo, barley, buckwheat, sunflower seeds |
| †Schumacher Scratch Grains (Without Grit) | 5731 | 5982 | Huffy & Yeoman, Mt. Ayr | 11.3 | 2.5 | 3.2 | 10.0 | 10.6 | Same as D 5534 |
| Schumacher Scratch Grains (Without Grit) | 5731 | 6480 | Wm. Rouse & Son, Indianapolis | 11.0 | 2.5 | 3.6 | 10.0 | 10.7 | Same as D 5534 |
| Schumacher Little Chick Feed Without Grit | 6457 | 6240 | Omer G. Whelan, Richmond | 11.3 | 2.5 | 3.8 | 10.0 | 10.4 | Wheat, cracked corn, kafir, millet, hulled oats, wild buckwheat, charcoal |
| †Schumacher Little Chick Feed Without Grit | 6457 | 6924 | Winslow Milling Co., Winslow | 6.6 | 2.5 | 3.7 | 10.0 | 10.5 | Cracked wheat, kafir, milo, corn, millet, hulled oats, wild buckwheat, misc. weed seeds, charcoal |
| Pansy Chick Feed Without Grit | 6631 | 6436 | Farmers Elevator Co., Jamestown | 11.5 | 2.5 | 3.8 | 10.0 | 10.2 | Cracked wheat, corn, kafir, millet, hulled oats, wild buckwheat, charcoal |
| †Pansy Chick Feed Without Grit | 6631 | 6524 | C. J. Castetter & Co., Goshen | 10.9 | 2.5 | 3.5 | 10.0 | 10.1 | Same as D 6436 |
| †Pansy Scratch Grains Without Grit | 7820 | 5977 | Huffy & Yeoman, Mt. Ayr | 10.4 | 2.5 | 3.6 | 8.5 | 9.8 | Cracked wheat, corn, kafir, milo, barley, buckwheat, sunflower seed |
| †Pansy Scratch Grains Without Grit | 7931 | 6525 | C. J. Castetter & Co., Goshen | 12.3 | 2.5 | 3.8 | 8.5 | 10.3 | Cracked corn, milo, kafir, oats, wheat, buckwheat, sunflower seed, barley |
| Pansy Scratch Grains Without Grit | 7931 | 7039 | Eberts & Bro., North Vernon | 10.0 | 2.5 | 3.2 | 8.5 | 10.5 | Same as D 6525 |
| Prize Winning Hen Feed Without Grit | 7933 | 6334 | A. J. Pelka, Gary | 10.3 | 2.5 | 3.8 | 8.5 | 10.3 | Wheat, cracked corn, kafir, oats, barley, buckwheat sunflower seed |
| Ralston Purina Company, St. Louis, Mo. | 7533 | 6199 | T. B. Ethridge, Jr., Markland | 11.3 | 2.5 | 3.3 | 10.0 | 10.2 | Wheat, cracked corn, milo, barley, kafir. Sunflower seed guaranteed but not identified |
| †Scratch Feed Without Grit or Screenings | 7533 | 6461 | Ralston Purina Co., Indianapolis | 10.5 | 2.5 | 3.6 | 10.0 | 10.1 | Wheat, cracked corn, kafir, milo, barley, sunflower seed |
| Chick Feed With Screenings | 8224 | 6443 | Ralston Purina Co., Indianapolis | 10.9 | 2.5 | 3.7 | 9.0 | 9.8 | Cracked corn, kafir, milo, millet, wheat screenings |
| Rapier Sugar Feed Company, Owensboro, Ky. | 6266 | 6307 | Evansville Dry Malt & Feed Co., Evansville | 10.3 | 2.0 | 2.9 | 10.0 | 11.0 | Wheat, cracked corn, kafir, barley, sunflower seed |
| Rapier's Economy Scratch Feed | 7589 | 6319 | Thos. C. Fisher, Anderson | 10.8 | 2.5 | 4.0 | 10.0 | 11.3 | Wheat, cracked corn, kafir, milo, pigeon grass, small amount misc. weed seeds |

267 Relabeled No. 5371

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|---|----------|--------------|---|--------------------|---------------------|-------|-------------------------|-------|--|
| | Official | Inspection D | | | Guaranteed | Found | Guaranteed | Found | |
| Schaefer, Karl H., Indianapolis, Ind. Schaefer's Extra Scratch Feed ----- | 7506 | 6425 | Manufacturers ----- | 8.8 | 2.5 | 9.1 | 10.0 | 12.7 | Wheat, cracked corn, kafir, millo, barley, oats, peanut germs and meat |
| Southern Seed Company, Louisville, Ky. Atlas Scratch Feed ----- | 3776 | 6408 | J. N. Gordon, Summitville ----- | 10.7 | 3.0 | 3.8 | 10.0 | 10.3 | Wheat, cracked corn, kafir, barley, oats, millo, sunflower seed. Buckwheat guaranteed but not identified |
| Indiana Economy Scratch Feed ----- | 7394 | 5823 | Louis Hartman & Sons, New Albany ----- | 13.0 | 2.5 | 3.4 | 9.5 | 9.7 | Wheat, cracked corn, kafir, oats, traces of millet and weed seeds, approx. 3.5% mus-sel shells |
| Indiana Economy Chick Feed ----- | 7695 | 5822 | Louis Hartman & Sons, New Albany ----- | 12.7 | 2.5 | 2.9 | 9.5 | 9.2 | Wheat, cracked corn, kafir, millet, oats, wheat screenings, approx. 3% mussel shells |
| Sowash, E. K., Middletown, Ind. E. K. Chick Starter & Feed ----- | 7192 | 6286 | Manufacturers ----- | 9.3 | 2.0 | 2.8 | 9.0 | 10.1 | Wheat, cracked corn, kafir, millet wheat screenings, charcoal, approx. 9.8% oyster shell |
| E. K. Chick Starter & Feed ----- | 7492 | 6287 | Manufacturers ----- | 9.2 | 2.0 | 3.3 | 9.0 | 10.5 | Same as D 6286. Approx. 8.8% oyster shell |
| Sprague, Warner, & Company, Chicago, Ill. Cero Brand Poultry Feed ----- | 5301 | 6354 | McMahan Bros., Valparaiso ----- | 10.6 | 2.5 | 3.6 | 10.0 | 10.4 | Wheat, cracked corn, kafir, millo, barley, buckwheat, sunflower seed |
| Union Grain & Feed Company, The, Anderson, Ind. Diamond Scratch Feed ----- | 7434 | 5551 | C. E. Smith, Wabash ----- | 13.3 | 2.0 | 3.5 | 9.0 | 9.8 | Wheat, cracked corn, kafir, barley, oats, sunflower seed. Buckwheat guaranteed but not identified |
| †Diamond Scratch Feed ----- | 7434 | 6255 | Pickering & Son, Anderson ----- | 10.6 | 2.0 | 4.0 | 9.0 | 10.3 | Wheat, cracked corn, kafir, barley, oats, sunflower seed. Buckwheat guaranteed but not identified |
| Diamond Scratch Feed ----- | 7434 | 6403 | Chas. Kelly & Son, Fairmount ----- | 9.8 | 2.0 | 4.4 | 9.0 | 10.8 | Wheat, cracked corn, kafir, barley, oats, sunflower seed. Buckwheat guaranteed but not identified. Millo and small amount of misc. weed seeds identified but not guaranteed |
| Diamond Scratch Feed ----- | 7434 | 6337 | E. R. Huey, Portland ----- | 10.8 | 2.0 | 3.8 | 9.0 | 10.1 | Wheat, cracked corn, kafir, barley, oats, wild buckwheat, sunflower seeds |
| Union Chick Feed Without Grit ----- | 8512 | 6402 | Chas. Kelly & Son, Fairmount ----- | 10.0 | 2.0 | 3.6 | 9.0 | 10.7 | Wheat, cracked corn, millet, kafir. Small amount of misc. weed seeds identified but not guaranteed |
| Walls, Guy M., Knox, Ind. Walls Mixed Chicken Feed ----- | 6308 | 6257 | Manufacturers ----- | 9.9 | 2.5 | 3.0 | 9.0 | 10.2 | Cracked corn, wheat, kafir, millo, barley, oats, buckwheat, sunflower seed, approx. 2.3% oyster shells |
| Western Grain Products Company, West Hammond, Ill. Calumet Scratch Feed—No Grit ----- | 7422 | 6335 | McMahan Bros., Valparaiso ----- | 11.0 | 2.5 | 3.3 | 10.0 | 12.1 | Wheat, cracked corn, kafir, barley, oats, wild buckwheat, sunflower seed |

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|---|------|------|--|------|-----|-----|------|------|---|
| Whelan, Omer G., Richmond, Ind. Scratching Grains Not Grit.----- | 8129 | 6244 | Manufacturers ----- | 11.7 | 3.0 | 4.2 | 9.5 | 9.9 | Wheat, cracked corn, kafir, barley, oats, buckwheat, sunflower seed, charcoal, wheat, corn, barley, oats, sunflower seed. Kafir, buckwheat, charcoal guaranteed but not identified |
| Poultry and Scratch Feeds With Grit | 8129 | 7949 | Manufacturers ----- | 9.6 | 3.0 | 3.1 | 9.5 | 9.9 | |
| Acme-Evans Company, Indianapolis, Ind. Acme Scratch Feed ----- | 6292 | 6784 | Winkler Grain Co., Rushville.----- | 11.8 | 2.5 | 3.2 | 10.0 | 9.8 | Wheat, cracked corn, kafir, barley, approx. 0.7% limestone grit. Oyster shells guaranteed but not identified |
| Acme Scratch Feed ----- | 6292 | 7218 | Peel & Co., Vincennes ----- | 9.1 | 2.5 | 3.3 | 10.0 | 9.8 | Same as D 6784. Approx. 1.9% limestone grit. |
| Acme Chick ----- | 6493 | 6944 | Hubert French, Linn Grove.----- | 10.6 | 2.5 | 3.4 | 10.0 | 10.1 | Cracked corn, wheat, kafir, millet, approx. 2.7% limestone grit |
| *Acme Chick ----- | 6184 | 6184 | Henryville Supply Co., Henryville ----- | 10.6 | --- | 3.4 | --- | 10.2 | Same as D 6044. Approx. 3.6% limestone grit |
| American Hominy Company, Indianapolis, Ind. Homco Chick Feed ----- | 6368 | 6272 | John H. Shine & Co., New Albany ----- | 8.8 | 2.5 | 2.9 | 9.0 | 10.3 | Cracked wheat, corn, kafir, milo, millet, approx. 1.2% heneta grit |
| Homco Chick Feed ----- | 6368 | 6981 | E. H. Heaton, Indianapolis ----- | 9.6 | 2.5 | 3.0 | 9.0 | 10.8 | Same as D 6272. Approx. 0.8% heneta grit |
| Homco Chick Feed ----- | 6368 | 6712 | Chas. A. Steele, Princeton ----- | 10.1 | 2.5 | 3.0 | 9.0 | 10.4 | Same as D 6272. Approx. 0.5% heneta grit |
| Standard Scratch Feed With Grit.----- | 8506 | 7277 | Cash Flour & Feed Store, South Bend ----- | 10.3 | 2.5 | 3.5 | 9.0 | 9.9 | Wheat, cracked corn, kafir, barley, wheat screenings, approx. 4.1% limestone grit |
| Hexite Scratch With Grit ----- | 8507 | 7067 | Osgood Grain Co., Osgood ----- | 9.7 | 2.5 | 3.8 | 10.0 | 10.9 | Wheat, cracked corn, kafir, barley, sunflower seed, corn germ meal, approx. 1.8% limestone grit |
| ††Standard Scratch Feed With Grit.----- | 8754 | 7555 | Cash Flour & Feed Store, South Bend ----- | 9.4 | 2.5 | 3.5 | 9.0 | 10.6 | Wheat, corn, kafir, oats, barley, wheat screenings, approx. 3.25% limestone grit |
| American Milling Company, Peoria, Ill. Cluck Chick Scratch Feed, With 5% Grit ----- | 8253 | 5820 | New Albany Milling Co., New Albany ----- | 12.7 | 2.5 | 3.4 | 10.0 | 10.0 | Wheat, cracked corn, kafir, barley, oats, sunflower seed, buckwheat, approx. 3.9% limestone grit |
| Badenoch Company, J. J., Chicago, Ill. ††C-er-lay Poultry Feed With Grit.----- | 6941 | 5784 | Reutepohler Hdw. Co., Huntingburg ----- | 9.7 | 2.5 | 3.2 | 9.5 | 10.0 | Cracked corn, wheat, oats, kafir, milo, barley, sunflower seed, oyster shells, charcoal, approx. 8% limestone grit |
| C-er-lay Poultry Feed With Grit.----- | 6941 | 6345 | J. S. Calkins, Laporte ----- | 9.6 | 2.5 | 3.1 | 9.5 | 9.7 | Wheat, cracked corn, kafir, milo, barley, oats, sunflower seed, approx. 4.39% limestone and quartz grit. Charcoal and oyster shell guaranteed but not identified. |
| Ger-lay Poultry Feed With Grit.----- | 6941 | 7271 | South Bend Grain Co., South Bend ----- | 9.9 | 2.5 | 3.5 | 9.5 | 11.1 | Wheat, cracked corn, kafir, milo, barley, oats, sunflower seed, approx. 0.8% oyster shell, approx. 5.6% limestone grit. Charcoal guaranteed but not identified |
| Dally Egg With Grit ----- | 6780 | 6413 | Erwin Sheaks, Indiana Harbor - | 8.5 | 2.5 | 3.6 | 9.5 | 9.2 | Wheat, cracked corn, kafir, milo, barley, wheat screenings, sunflower seed, charcoal, approx. 10.3% limestone grit. Rye guaranteed but not identified. Approx. 1% oyster shell identified but not guaranteed |

* Not tagged

†† Not tagged.

Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | Inspection Official | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|--------|------------------------|---|-----------------------|---------------------------|-------|-------------------------------|-------|--|
| | | | | | Guar- anteed | Found | Guar- anteed | Found | |
| Badenoch Company, J. J., Chicago, Ill. Daily Egg Poultry Feed With Grit---- | 7282 | 6430 | Belt Elevator and Feed Co., Indianapolis ----- | 9.1 | 2.5 | 3.6 | 9.5 | 9.7 | Wheat, cracked corn, kafir, milo, oats, barley, sunflower seeds, weed seeds, charcoal, approx. 0.5% oyster shells, approx. 12% limestone grit |
| Daily Egg Poultry Feed With Grit---- | 7282 | 7556 | Przybylsz Flour & Feed Co., South Bend ----- | 8.0 | 2.5 | 2.8 | 9.5 | 10.5 | Wheat, corn, kafir, milo, oats, barley, sunflower seeds, weed seeds, charcoal, approx. 9.5% limestone grit. Oyster shells guaranteed but not identified |
| Egspay Poultry Feed With Grit ²⁰⁸ --- | 7320 | 6190 | Huntington Grocery Co., Huntington ----- | 10.0 | 2.5 | 3.8 | 9.5 | 9.3 | Wheat, cracked corn, kafir, milo, barley, sunflower seed and approx. 2.3% limestone grit. Oats, approx. 14% wild buckwheat and misc. weed seeds, approx. 1% wheat shells identified but not guaranteed |
| ††Egspay Poultry Feed With Grit----- | 8562 | 6173 | Studebaker & Zook, Fulton----- | 9.0 | 2.5 | 3.5 | 9.5 | 9.3 | Wheat, cracked corn, kafir, milo, barley, oats, approx. 17% limestone grit. Approx. 22% foreign material consisting of wild buckwheat, misc. weed seeds and flaxseed identified, wild buckwheat and whole weed seeds from barley and wheat screenings guaranteed |
| Egspay Poultry Feed With Grit----- | 8562 | 6200 | T. B. Ethridge, Markland ----- | 9.8 | 2.5 | 3.2 | 9.5 | 9.3 | Wheat, cracked corn, milo, sunflower seed, barley, kafir, oats, large amount misc. weed seeds, approx. 10% limestone grit. Approx. 1% oyster shell identified but not guaranteed |
| Bauermeister Company, Inc., Chas. W., Terre Haute, Ind. | 5215 | 6655 | Manufacturers ----- | 11.1 | 2.0 | 2.9 | 9.0 | 9.3 | Wheat, corn, kafir, oats, approx. 5.1% heneta grit |
| Bauermeister's Chick Feed ----- | 5221 | 6657 | Manufacturers ----- | 8.7 | 2.0 | 2.9 | 8.0 | 8.7 | Wheat, corn, kafir, steel cut oats, millet, approx. 10% heneta grit |
| Brizius Company, The Chas. W., Newburgh, Ind. | 8063 | 5632 | The Chas. W. Brizius Co., Evansville ----- | 11.4 | 2.5 | 3.2 | 9.0 | 10.5 | Wheat, cracked corn, barley, kafir, milo, oats, buckwheat, sunflower seed, quartz grit |
| Log Cabin Scratch Grains With Grit-- | 8063 | 6800 | The Chas. W. Brizius Co., Evansville ----- | 9.8 | 2.5 | 3.3 | 9.0 | 11.1 | Same as D 5632 |
| Log Cabin Scratch Grains With Grit-- | 8063 | 7787 | The Chas. W. Brizius Co., Evansville ----- | 9.8 | 2.5 | 3.8 | 9.0 | 10.7 | Same as D 5632. Approx. 3.5% grit |
| Browning Milling Company, W. A., Evansville, Ind. | 6477 | 7791 | Manufacturers ----- | 8.5 | 2.0 | 3.1 | 9.0 | 10.2 | Wheat, corn, oats cockle seed, approx. 2.8% granite grit |

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|---|------|------|---|------|-----|-----|------|------|---|
| Burge-Thomas Milling Company, Marion, Ind. Tip Top Scratch Feed ----- | 5389 | 6339 | Thomas Milling Co., Marion----- | 9.6 | 2.5 | 2.9 | 10.0 | 9.7 | Wheat, cracked corn, barley, oats, buck- wheat, charcoal, approx. 3.3% oyster shells. Limestone grit guaranteed but not identified |
| Tip Top Chick Feed ----- | 5600 | 6365 | Thomas Milling Co., Marion----- | 10.8 | 2.5 | 3.1 | 9.0 | 10.1 | Cracked wheat, corn, charcoal. Millet, lime- stone grit guaranteed but not identified |
| Carroll & Son, E. L., Decatur, Ind. Carrolls Chick Feed With Grit----- | 8408 | 7102 | Manufacturers ----- | 9.1 | 2.5 | 3.6 | 10.0 | 9.9 | Cracked corn, wheat, kafir, millet, hulled oats, wild buckwheat, misc. wild weed seeds, charcoal, approx. 5.8% limestone grit |
| Carrolls Scratch Feed With Grit----- | 8409 | 7103 | Manufacturers ----- | 8.4 | 2.5 | 3.5 | 8.5 | 9.8 | Wheat, cracked corn, kafir, barley, oats, buckwheat, sunflower seed, approx. 7.3% limestone grit |
| Dickinson Company, The Albert, Chicago, Ill. Globe Chick Feed With Grit ----- | 5615 | 6416 | Chas. F. Naber & Co., Alexandria ----- | 9.5 | 2.5 | 3.2 | 10.0 | 10.0 | Cracked wheat, corn, kafir, millet, hulled oats, approx. 8.1% limestone grit Same as D 6416. Approx. 4.8% limestone grit |
| Globe Chick Feed With Grit ----- | 5615 | 6356 | Kellner & Callahan, Rensselaer- Wesley Miller Flour & Feed ----- | 9.8 | 2.5 | 3.0 | 10.0 | 9.8 | Same as D 6416. Approx. 4.8% limestone grit |
| Globe Chick Feed With Grit ----- | 5615 | 7273 | Co., South Bend ----- | 9.0 | 2.5 | 3.4 | 10.0 | 9.7 | Same as D 6416. Approx. 8.8 limestone grit |
| White Cross Chick Feed With Grit----- | 5625 | 6506 | C. E. Bash & Co., Inc., Huntington ----- | 8.8 | 2.5 | 3.4 | 9.0 | 9.0 | Ground corn, wheat, kafir, millet, approx. 8.2% limestone grit |
| Globe Scratch Feed With Grit ----- | 6385 | 6358 | J. W. Harvey & Co., Marion----- | 9.8 | 2.5 | 3.3 | 10.0 | 11.6 | Wheat, cracked corn, kafir, barley, oats, buckwheat, sunflower seed, linseed cake, approx. 3% limestone grit |
| Globe Scratch Feed With Grit ----- | 6385 | 6651 | Indiana Flour & Feed Co., Terre Haute ----- | 10.9 | 2.5 | 3.3 | 10.0 | 11.3 | Same as D 6358. Approx. 4.9% limestone grit |
| Globe Scratch Feed With Grit ----- | 6385 | 6907 | Fred Holtz, Williamsport ----- | 10.0 | 2.5 | 3.3 | 10.0 | 10.6 | Same as D 6358. Approx. 3.4% limestone grit |
| Rival Scratch Feed With Grit ----- | 6388 | 6992 | North Judson Flour & Feed Co., North Judson ----- | 9.1 | 2.5 | 3.7 | 9.5 | 10.1 | Wheat, cracked corn, kafir, barley, oats, wild buckwheat, approx. 7.2% limestone grit |
| Rival Scratch Feed With Grit ----- | 6388 | 6383 | Probst & Kassebaum, Indianapolis ----- | 10.3 | 2.5 | 3.3 | 9.5 | 10.3 | Same as D 6262. Approx. 9.1% limestone grit |
| White Cross Scratch Feed With Grit----- | 6968 | 6410 | Bleker Bros. Co., Hammond ----- | 9.4 | 2.5 | 3.3 | 9.0 | 10.1 | Wheat, cracked corn, kafir, barley, oats, buckwheat, sunflower seed, approx. 4.65% limestone grit |
| White Cross Scratch Feed With Grit----- | 6968 | 6946 | Jones Bros., Attica ----- | 8.5 | 2.5 | 3.4 | 9.0 | 10.2 | Same as D 6410. Approx. 8.7% limestone grit |
| Pine Tree Scratch Feed With Grit----- | 6969 | 6323 | A. C. Hetschmidt, Michigan City ----- | 10.2 | 2.5 | 3.3 | 9.0 | 9.7 | Same as D 6946. Approx. 5% limestone grit |
| Pine Tree Scratch Feed With Grit----- | 6969 | 6534 | Wakarusa Milling Co., Wakarusa ----- | 10.0 | 2.5 | 3.3 | 9.0 | 10.7 | Same as D 6946. Approx. 7.2% limestone grit |
| Dixie Mills Company, East St. Louis, Ill. Polo Chick Feed 350 ----- | 7930 | 6963 | French Lick Feed Exchange, French Lick ----- | 10.9 | 2.0 | 5.6 | 9.0 | 11.6 | Wheat, cracked corn, kafir, milo, screenings from wheat and flax. Limestone grit guaranteed but not identified |
| Polo Hen Feed (With Grit) ----- | 8293 | 6380 | Probst & Kassebaum, Indianapolis ----- | 9.7 | 2.0 | 2.8 | 9.0 | 10.5 | Wheat, cracked corn, kafir, milo, emmer, sunflower seed, wheat screenings, approx. 4.2% limestone grit. Barley guaranteed but not identified |

†† Not tagged. Labels furnished
268 1100 lbs. withdrawn from sale

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Official | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|---|----------|------------|---|---|--------------------|---------------------|-------|-------------------------|-------|--|
| | | Inspection | D | | | Guaranteed | Found | Guaranteed | Found | |
| Dixie Mills Company, East St. Louis, Ill. Polo Hen Feed (With Grit) 270----- | 8263 | 6818 | | Naas-Sanderson Co., Evansville. | 9.4 | 2.0 | 3.1 | 9.0 | 10.4 | Wheat, cracked corn, milo, kafir, barley, emmer, sunflower seeds, wheat screenings, approx. 6% limestone grit. Oats identified but not guaranteed Same as D 6818. Approx. 26.7 limestone grit |
| Polo Hen Feed (With Grit) 270----- | 8263 | 6819 | | Naas-Sanderson Co., Evansville. | 7.4 | 2.0 | 2.1 | 9.0 | 8.1 | Wheat, corn, barley, emmer, sunflower seed, wheat screenings, approx. 6.6% limestone grit |
| Polo Hen Feed (With Grit) 269----- | 8263 | 6820 | | W. H. Small & Co., Evansville. | 9.5 | 2.0 | 3.1 | 9.0 | 10.7 | Same as D 6818. Approx. 26.7 limestone grit |
| Polo Hen Feed (With Grit) ----- | 8263 | 7824 | | W. H. Small & Co., Evansville. | 8.4 | 2.0 | 2.5 | 9.0 | 10.4 | Wheat, corn, barley, emmer, sunflower seed, wheat screenings, approx. 6.6% limestone grit |
| Edinger & Company, Louisville, Ky. Arrow Hen Feed (With Grit) ----- | 6397 | 6728 | | O. L. Cauble, Pekin ----- | 9.3 | 3.0 | 3.6 | 10.0 | 10.6 | Same as D 6820. Approx. 1.9% grit |
| Edwards & Loomis Company, Chicago, Ill. Pound Squab Pigeon Feed (With Grit) ----- | 6505 | 7265 | | South Bend Grain Co., South Bend ----- | 10.0 | 2.5 | 3.2 | 10.0 | 11.9 | Wheat, corn, barley, clipped oats, sunflower seed, approx. 2.1% limestone grit. Kafir, milo guaranteed but not identified |
| Emison & Company, J. & S., (Batie Mills), Vincennes, Ind. +Blue Diamond Little Chick Feed.----- | 5071 | 6719 | | R. P. Moore Milling Co., Princeton ----- | 9.7 | 2.5 | 3.6 | 8.5 | 10.7 | Wheat, cracked corn, kafir, peas, millet, hemp seed, buckwheat, approx. 1.4% quartz grit |
| Blue Diamond Little Chick Feed.----- | 5071 | 6843 | | Ohio Valley Seed Co., Evansville | 8.6 | 2.5 | 4.7 | 8.5 | 10.3 | Wheat, corn, kafir, barley, oats, rye, sunflower seed, corn germ meal, wheat screenings, approx. 6.7% limestone grit |
| Blue Diamond Poultry Feed ----- | 6248 | 6718 | | F. W. Carson, Princeton----- | 9.2 | 2.5 | 5.1 | 8.5 | 10.8 | Wheat, cracked corn, kafir, millet, screenings, approx. 3.2% limestone grit |
| Fairplay Feed Mills, Linton, Ind. Success Chick Feed With Grit ----- | 6720 | 7130 | | Board of Trade Feed Store, Linton ----- | 8.7 | 2.5 | 2.3 | 9.5 | 9.6 | Same as D 6719. Approx. 5% limestone grit |
| Fairplay Scratch Feed With Grit & Oyster Shell ----- | 7753 | 5941 | | T. H. Owens & Co., Bedford----- | 10.2 | 2.5 | 2.8 | 9.0 | 9.4 | Wheat, cracked corn, kafir, barley, oats, sunflower seed, charcoal, approx. 3.1% oyster shells, approx. 3.2% quartz grit |
| Fairplay Scratch Feed With Grit & Oyster Shells ----- | 7753 | 7129 | | Board of Trade Feed Store, Linton ----- | 8.2 | 2.5 | 2.5 | 9.0 | 8.6 | Same as D 5941. Approx. 9.3% quartz grit. Oyster shell not determined |
| Feed Products Milling Company, Chicago, Ill. Lykit Scratch Feed (With Grit & Shell) ----- | 8010 | 7820 | | Ohio Valley Seed Co., Evansville | 8.8 | 2.5 | 3.1 | 10.0 | 12.0 | Wheat, corn, kafir, barley, oats, wild buckwheat, sunflower seeds, approx. 1.1% grit, approx. 0.9% oyster shell |
| Kukoo Fine Chick Feed (With Grit)----- | 8365 | 6369 | | W. C. Hall Milling Co., Brazil-- | 10.6 | 2.5 | 3.8 | 10.0 | 10.4 | Ground wheat, corn, kafir, millet seed, approx. 4.9% quartz grit |
| Golden Egg Coarse Chick Feed (With Grit) ----- | 8360 | 6844 | | Ohio Valley Seed Co., Evansville | 10.7 | 2.5 | 2.6 | 10.0 | 11.1 | Cracked corn, wheat, kafir, millet, hulled oats, approx. 4.5% limestone grit |

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|---|----------|------------|------------------------------------|--------------------|---------------------|-------|-------------------------|-------|---|
| | Official | Inspection | | | Guaranteed | Found | Guaranteed | Found | |
| Indiana Elevator Company, Indianapolis, Ind. Hoosier Scratch Feed | 4932 | 6543 | Manufacturers | 9.1 | 3.2 | 2.9 | 9.0 | 9.5 | Wheat, corn, kafir, buckwheat, sunflower seeds, whole screenings, charcoal, approx. 2% oyster shells, approx. 2.9% limestone grit |
| Hoosier Scratch Feed | 8579 | 7740 | Manufacturers | 8.8 | 2.0 | 2.6 | 8.5 | 9.9 | Wheat, corn, kafir, milo, oats, buckwheat, sunflower seed, wheat screenings, charcoal, oyster shell, limestone grit |
| International Sugar Feed Company, Minneapolis, Minn. International Poultry Feed (With Grit) | 8090 | 6518 | Goshen Milling Co., Goshen | 10.8 | 3.5 | 3.3 | 10.0 | 9.6 | Corn, wheat, barley, oats, kafir, milo, buckwheat, weed seeds, screenings, approx. 7.6% limestone grit |
| Kiest-Dube Milling Company, Knox, Ind. Chick Feed | 3711 | 6259 | Manufacturers | 8.8 | 3.0 | 4.3 | 10.0 | 12.6 | Cracked wheat, corn, hulled oats, millet, charcoal, approx. 1.3% mica grit |
| Chick Feed | 3711 | 7474 | Manufacturers | 8.9 | 3.0 | 3.2 | 10.0 | 12.0 | Same as D 6259. Approx. 2.25% mica grit |
| Kiest-Dube Milling Co. Developing Feed | 3866 | 6258 | Manufacturers | 9.6 | 2.5 | 3.7 | 10.8 | 10.7 | Wheat, cracked corn, kafir, milo, hulled oats, charcoal, approx. 1% mica grit |
| Kiest-Dube Milling Co. Developing Feed | 3866 | 7475 | Manufacturers | 9.0 | 2.5 | 2.9 | 10.8 | 11.0 | Same as D 6258. Approx. 1.9% mica grit |
| Kuhn & Son, John H., Michigan City, Ind. Heneata Scratch Feed | 5410 | 6328 | Manufacturers | 10.9 | 2.0 | 3.5 | 9.0 | 10.1 | Wheat, corn, kafir, oats, barley, buckwheat, sunflower seeds, charcoal, approx. 0.88% oyster shells, approx. 3% mica grit |
| Prairie State Milling Company, Chicago, Ill. Red Crown Scratch Feed With Grit | 7257 | 7198 | L. Combs & Sons, Vincennes | 9.8 | 2.5 | 3.1 | 10.0 | 10.4 | Wheat, cracked corn, barley, oats, wild buckwheat, sunflower seed, approx. 0.8% oyster shell, approx. 5.1% limestone grit, charcoal. Kafir guaranteed but not identified |
| Prater-Mottier Company, Terre Haute, Ind. Prater's Chick Feed | 8409 | 6437 | Farmers Elevator Co., Jamestown | 8.9 | 2.0 | 2.8 | 7.0 | 8.8 | Cracked corn, kafir, wheat screenings, millet, misc. weed seeds, approx. 16.4% limestone grit |
| Prater & Company, B. J., Terre Haute, Ind. Prater's Chick Feed | 6879 | 6538 | Prater-Mottier Co., Terre Haute | 7.2 | 2.0 | 2.5 | 7.0 | 6.9 | Ground corn, kafir, buckhorn, misc. weed seeds, approx. 27.8% limestone grit |
| Quaker Oats Company, The, Chicago, Ill. Early Bird Scratch Grains With Grit | 6548 | 7104 | Henry Schmidt, Madison | 9.4 | 2.5 | 3.0 | 10.0 | 9.9 | Wheat, cracked corn, kafir, oats, barley, sunflower seed, approx. 7.3% limestone grit. Oyster shells guaranteed but not identified |

| | | | | | | | | | |
|--|------|------|---------------------------------------|------|-----|-----|------|------|--|
| Quaker Oats Company, The, Chicago, Ill. | 6377 | 6384 | Probst & Kassebaum, Indianapolis | 10.8 | 2.5 | 3.8 | 10.0 | 10.2 | Wheat, cracked corn, kafir, millet, hulled oats, wild buckwheat, charcoal, approx. 2.6% limestone grit |
| Pansy Chick Feed With Grit | 6377 | 6385 | Kraus & Apfelbaum, Fort Wayne | 11.1 | 2.5 | 3.4 | 10.0 | 9.9 | Same as D 6384. Approx. 3.7% limestone grit |
| Pansy Chick Feed With Grit | 6377 | 7307 | Home Grain Co., Lagrange | 9.4 | 2.5 | 2.7 | 10.0 | 10.1 | Same as D 6384. Approx. 7% limestone grit |
| Schumacher Scratch Grains With Grit | 7796 | 7367 | Luecke Bros., Crown Point | 9.9 | 2.5 | 3.1 | 10.0 | 10.9 | Wheat, cracked corn, kafir, barley, oats, buckwheat, sunflower seed, approx. 6% |
| Pansy Scratch Grains With Grit | 7302 | 6326 | H. F. Keppen & Co., Michigan City | 9.9 | 2.5 | 3.3 | 8.5 | 9.3 | limestone grit Wheat, corn, kafir, oats, barley, buckwheat, sunflower seeds, approx. 4.95% limestone grit |
| Rapier Sugar Feed Company, Owensboro, Ky. | 5578 | 6441 | Lingman-Adams & Co., Brownsburg | 11.0 | 2.5 | 4.8 | 10.0 | 11.5 | Wheat, cracked corn, kafir, milo, pigeon grass, approx. 3.6% limestone grit. Millet, flaxseed identified but not guaranteed |
| Robey Mills, Inc., Chicago, Ill. | 8427 | 6174 | Studebaker & Zook, Fulton | 9.8 | 2.5 | 3.5 | 9.5 | 12.2 | Cracked corn, wheat, hulled oats, millet, clover seed screenings, approx. 13.6% limestone grit. Oyster shells guaranteed but not identified |
| †† Velvet Chick Feed With Grit | 8427 | 6211 | Huntington Grocery Co., Huntington | 9.1 | 2.5 | 3.9 | 9.5 | 10.1 | Wheat, cracked corn, oat groats, millet, barley, kafir, milo, misc. weed seeds, ap- prox. 0.8% oyster shells, approx. 6% lime- stone grit. Flaxseed identified but not guaranteed |
| Velvet Chick Feed With Grit | 8427 | 6212 | Huntington Grocery Co., Huntington | 8.5 | 2.5 | 4.5 | 9.5 | 10.5 | Cracked wheat, corn, oat groats, millet, cracked barley, misc. weed seeds, approx. 10% limestone grit. Oyster shells guar- anteed but not identified. Flaxseed iden- tified but not guaranteed |
| Velvet Chick Feed With Grit | 8427 | 7165 | Little Crow Milling Co., Warsaw | 9.0 | 2.5 | 3.6 | 9.5 | 9.7 | Whole grain screenings, approx. 12.9% limestone grit. Oyster shell guaranteed but not identified |
| Union Grain & Feed Company, Anderson, Ind. | 7453 | 6321 | Thomas C. Fisher, Anderson | 10.6 | 1.8 | 3.6 | 8.5 | 9.5 | Wheat, cracked corn, kafir, oats, barley, milo, limestone grit. Charcoal guaran- teed but not identified |
| Union Chick Feed With Grit | 8511 | 6401 | J. C. Crawford, Gas City | 10.3 | 2.0 | 3.7 | 9.0 | 10.8 | Wheat, cracked corn, kafir, milo, millet, limestone grit guaranteed but not iden- tified. Small amount of weed seeds, ap- prox. 2.4% oyster shells identified but not guaranteed |
| Union Chick Feed With Grit | 8511 | 6331 | Pennville Milling Co., Pennville | 9.8 | 2.0 | 3.2 | 9.0 | 9.7 | Cracked wheat, corn, kafir, millet, approx. 2% limestone grit. Charcoal, approx. 0.7% oyster shells identified but not guar- anteed |
| Whelan, Omer G., Richmond, Ind. Scratching Grains With Grit | 8128 | 7948 | Manufacturers | 9.0 | 2.9 | 3.3 | 9.0 | 9.3 | Wheat, corn, barley, oats, sunflower seed, approx. 7.9% grit. Kafir, buckwheat, charcoal, oyster shell guaranteed but not identified |

272 Conflicting guarantees

†† Not tagged. Labels furnished

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|---|----------|--------------|------------------------------|--------------------|---------------------|-------|-------------------------|-------|---|
| | Official | D Inspection | | | Guaranteed | Found | Guaranteed | Found | |
| Whelan, Omer G., Richmond, Ind. Whelan's Chick Feed | 8551 | 6245 | Manufacturers | 9.0 | 2.0 | 3.3 | 8.0 | 9.7 | Wheat, cracked corn, kafir, steel cut oats, clover seed screenings, charcoal, approx. 8% limestone grit. Millet guaranteed but not identified |
| Wilkinson, A. E., New Castle, Ind. Wilkinson's Henola Mash | 5677 | 6548 | Manufacturers | 9.7 | 2.0 | 4.1 | 12.0 | 13.3 | Wheat bran, middlings, corn gluten meal, linseed meal, corn feed meal, Heneta guaranteed but not identified |
| Wilkinson's La-U-Se Poultry Feed, With Grit | 7053 | 7331 | Manufacturers | 9.9 | 2.5 | 3.3 | 10.0 | 9.4 | Wheat, corn, kafir, oats, millet, cane seed, sunflower seed, linseed cake, approx. 4.4% grit |
| *Scratch Feed 273 | --- | 6201 | J. W. Marsh, East Enterprise | 10.6 | --- | 3.0* | --- | 9.2 | Wheat, cracked corn, oats, small amount misc. weed seeds, approx. 7.3% limestone grit |
| *Scratch Feed 273 | --- | 6197 | J. W. Chittenden, Markland | 9.7 | --- | 3.3 | --- | 9.0 | Wheat, cracked corn, oats, approx. 8% limestone grit |
| CONDIMENTAL STOCK FOODS, REGISTERED | | | | | | | | | |
| German Reliable Medicine Company, Decatur, Ind. German Reliable Stock Food | 6737 | 7093 | Manufacturers | 5.8 | 0.6 | 2.8 | 13.0 | 8.6 | Fenugreek, elecampane, gentian, blood root, sulphur, wood ashes, sugar, linseed meal, wheat middlings, 19.9% salt |
| Gifford & Whitman, Russellville, Ind. Whitman's Ionic and Worm Expeller | 8513 | 6178 | Manufacturers | 2.7 | 0.0 | 0.2 | 0.0 | 0.7 | Copperas, nux vomica, sulphur, epsom salts, 81.5% salt, Spanish brown, black antimony. Charcoal identified but not guaranteed |
| Guarantee Food Company of Pennsylv- ania, Lewisburg, Pa. Keystone Stock Conditioner 274 | 8478 | 6578 | Wyatt Coal Co., Auburn | 11.3 | 0.0 | 5.7 | 0.0 | 7.7 | Sulphur, copperas, epsom salts, fenugreek, gentian, ginger, capsicum, ground cocoa shells, buckwheat hulls |
| Indispensable Chemical Company, Kokomo, Ind. Indispensable Condition Powder 275 | 7333 | 5720 | E. R. Thomas, Kokomo | 2.0 | 0.0 | 0.2 | 0.0 | 1.0 | Copperas, calcium carbonate, lime, char- coal, epsom salts, probably ashes, 16.1% salt, 1.9% sulphur. Gentian guaranteed but not identified |
| K. & B. Medicine Company, Kirkin, Ind. K & B Hog Tonic 276 | 8349 | 6371 | Manufacturers | 10.1 | 4.0 | 3.0 | 14.0 | 21.8 | Gentian, ginger, madder, 1.7% sulphur, charcoal, salt petre, epsom salts, glaubers salts, linseed meal, lime, 19.1% salt. Cop- peras, columbo, sodium bi-carbonate guaranteed but not identified |
| K & B Stock Conditioner 277 | 3886 | 6372 | Manufacturers | 7.8 | 5.0 | 5.1 | 14.0 | 26.9 | Gentian, fenugreek, antimony, asafetida, ginger, sanguinaria, mandrake, columbo, poplar bark, charcoal, potassium bi- tartrate, glauber's salt, linseed meal, 15.6% salt, 4% sulphur. Copperas, madder guar- anteed but not identified |

| | | | | | | | | | |
|---|------|------|--|------|-----|-----|-----|------|--|
| Le Gear Medicine Company, Dr. L. D., St. Louis, Mo. †† Dr. Le Gears' Stock Powders ²⁷⁸ | 8135 | 7128 | Bunch Feed Store, Linton | 6.9 | 3.0 | 5.5 | 4.0 | 6.6 | Ginger, nux vomica, peanut hulls, palm oil, trace wheat middlings, potassium nitrate, salt, copperas, charcoal. Fennel, sodium bicarbonate, quassia guaranteed but not identified. Gentian, anise identified but not guaranteed Gentian, blood root, ginger, poplar bark, licorice, fenugreek, quassia, flax screen- ing, epsom salts, 40.4% salt , charcoal, 2.4% sulphur |
| United States Food Company, The, Pleasant City, Ohio U. S. Stock Food Tonic ²⁷⁹ | 7493 | 6828 | D. B. Zimmerman & Son, Cicero | 6.0 | 0.0 | 2.4 | 0.0 | 5.9 | Fenugreek, gentian, ginger, anise, charcoal, salt, saltpetre, wheat middlings, ground flaxseed screenings |
| Wilbur Stock Food Company, Milwaukee, Wis. *Wilbur's Hog Feed ²⁸⁰ | --- | 6294 | John L. Poot, Anderson | 8.4 | --- | 5.4 | --- | 12.5 | Linseed |
| CONDIMENTAL STOCK FOODS, NOT REGISTERED | | | | | | | | | |
| Capitol Food Company, Tiffin, Ohio Capitol Covine | --- | 6101 | Storfs & Son, Van Buren | 8.6 | --- | 0.6 | --- | 5.1 | Ground grain screenings, charcoal, 27.5% salt, copperas, epsom salts, quassia, prob- ably worm seed, nux vomica |
| Capitol Stock Remedy | --- | 6102 | Storfs & Son, Van Buren | 8.9 | --- | 0.6 | --- | 5.3 | Ground grain screening, charcoal, copperas, quassia, epsom salts, 24.6% salt, probably worm seed, gentian, nux vomica |
| Capitol Hog Remedy | --- | 8243 | Prentiss Gill, Waterloo | 6.8 | --- | 3.0 | --- | 4.1 | Flaxseed screenings, charcoal, quassia, epsom salts, copperas, wormseed, gentian, nux vomica |
| Columbian Hog & Cattle Powder Company, Kansas City, Mo. Columbian Horse Conditioner | --- | 5353 | Columbian Hog & Cattle Powder Co., Indianapolis | 5.2 | --- | 1.8 | --- | 9.4 | Linseed meal, charcoal, fenugreek, 22.1% salt, copperas, ginger, epsom salts, prob- ably anhydrous sodium sulphate, nux vomica |
| Cattle-Tone ²⁸⁰ | --- | 5354 | Columbian Hog & Cattle Powder Co., Indianapolis | 5.2 | --- | 2.1 | --- | 10.2 | Fenugreek, copperas, 23.3% salt, ginger, charcoal, saltpetre, epsom salts |
| Council Bluffs Remedy Company, Peoria, Ill. Andrews Stock Powders ²⁸¹ | --- | 7541 | Henry Barlow, Plainfield | 46.2 | --- | 0.6 | --- | 1.1 | Charcoal, glauber's salt, worm seed, sul- phur, traces epsom salts, and copperas |
| Andrews Stock Powders ²⁸² | --- | 7542 | John Hollingsworth, Plainfield | 41.8 | --- | 0.6 | --- | 1.5 | Same as D 7541 |
| Andrews Stock Powders ²⁸³ | --- | 7543 | George Mercer, Plainfield | 44.5 | --- | 0.5 | --- | 1.2 | Same as D 7541 |
| Horse Relief Remedy Company, Angola, Ind. Hog Powder ²⁸⁴ | --- | 6073 | Manufacturers | 44.6 | --- | 0.2 | --- | 0.4 | Glauber's salt, sodium thiosulphate epsom salts, charcoal, sulphur |

* Not tagged

†† Not tagged. Labels furnished

²⁷³ Manufacturers name could not be ascertained²⁷⁴ 2.4% sulphur removed from ether extract²⁷⁵ 1.9% sulphur removed from ether extract²⁷⁶ 1.7% sulphur removed from ether extract²⁷⁷ 0.4% sulphur removed from ether extract²⁷⁸ 0.4% sulphur removed from ether extract²⁷⁹ 0.4% sulphur removed from ether extract²⁸⁰ 0.4% sulphur removed from ether extract²⁸¹ 0.4% sulphur removed from ether extract²⁸² 0.4% sulphur removed from ether extract²⁸³ 0.4% sulphur removed from ether extract²⁸⁴ 0.4% sulphur removed from ether extract²⁷³ Nitrogen present in saltpetre included in crude protein²⁷⁴ 2.4% sulphur removed from ether extract²⁷⁵ Nitrogen present in saltpetre included in crude protein²⁷⁶ 1.9% sulphur removed from ether extract²⁷⁷ 1.7% sulphur removed from ether extract²⁷⁸ 0.4% sulphur removed from ether extract²⁷⁹ 0.4% sulphur removed from ether extract²⁸⁰ 0.4% sulphur removed from ether extract²⁸¹ 0.4% sulphur removed from ether extract²⁸² 0.4% sulphur removed from ether extract²⁸³ 0.4% sulphur removed from ether extract²⁸⁴ 0.4% sulphur removed from ether extract

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number Inspection | Official | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|----------------------|----------|---|-----------------------|---------------------------|-----------------------|------------------|-------|---|
| | | | | | Guar- anteed | Found | Guar- anteed | Found | |
| National Mfg. Company, Fla., Ind. National Stock Tonic | 5935 | --- | C. E. & G. B. Cleaver, Outler | 7.3 | --- | 1.7 | --- | 7.2 | Corn germ meal, salt, epsom salt, air-slaked lime, venetian red, probably glauher's salts |
| National Stock Tonic | 7357 | --- | James Ruch, Mulberry | 2.3 | --- | 0.0 | --- | 1.0 | Venetian red, air-slaked lime, glauher's salts |
| National Stock Remedy Company, Chicago, Ill. | 6070 | --- | Roy Vansooy, Delphi | 36.7 | --- | 0.4 | --- | 3.1 | Same as D 7873 |
| National Hog Remedy ²⁸⁵ | 7873 | --- | Sandusky Farmers Elevator Co., Sandusky | 35.6 | --- | 0.1 | --- | 1.4 | Glauher's salt, copperas, charcoal, sulphur, worm seed, linseed meal, small amount alfalfa meal, epsom salts |
| Standard Chemical & Mfg. Company, Omaha, Neb. | 7622 | --- | Noblesville Fuel & Supply Co., Noblesville | 3.6 | --- | 1.6 | --- | 3.6 | Corn feed meal, peanut hulls, charcoal, glauher's salts, copperas, epsom salts, salt, sulphur, quassia, worm seed |
| Standard Hog & Cattle Regulator | --- | --- | --- | --- | --- | --- | --- | --- | Charcoal, sulphur, glauher's salt, salt, alum, copperas |
| United Remedies Company, Angola, Ind. United Hog Powder ²⁸⁶ | 8119 | --- | Stanley Meyers, Goshen | 42.9 | --- | 0.3 | --- | 0.9 | --- |
| CONDIMENTAL POULTRY FEEDS, REGISTERED | | | | | | | | | |
| Capitol Food Company, The, Tiffin, Ohio | 4512 | 6100 | Storts & Son, Van Buren | 11.3 | 0.0 | 1.8 | 0.0 | 9.4 | Capsicum, epsom salts, copperas, Venetian red, 4% sulphur, quassia, nux vomica, ground screenings from flax. Worm seed, potassium permanganate guaranteed but not identified |
| Conkey Company, The G. E., Cleveland, Ohio | 7212 | 6386 | Ossian Roller Mills, Ossian | 9.3 | 3.0 | 4.3 | 12.0 | 12.7 | Gentian, copperas, mustard seed, cracked wheat, corn, hulled oats, wheat middlings, bone, evaporated buttermilk |
| Conkey's Buttermilk Starting Food | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Davis, E. D., North Vernon, Ind. Davis Poultry Powder & Egg Producer ²⁸⁸ | 4973 | 5751 | Manufacturers | 5.5 | 10.0 | 17.6 | 6.5 | 13.6 | Ginger, gentian, capsicum. Venetian red, sulphur, charcoal, ground flaxseed, Cantharides guaranteed but not identified |
| Ehrman & Company, Terre Haute, Ind. Ehrman's Poultry Food | 606 | 6350 | Manufacturers | 7.3 | 15.0 | 22.9 | 6.0 | 53.2 | Meat cracklings, bone, cayenne pepper |
| German Reliable Medicine Company, Decatur, Ind. | --- | --- | Manufacturers | 5.1 | --- | ²⁹⁰ 2.6 | --- | 4.3 | Capsicum, blood root, probably madder, resin, bone meal, saltpetre, Glauher's salt, lime, 24.4% salt |
| *Chicken Tonic ²⁸⁹ | 7092 | --- | --- | --- | --- | --- | --- | --- | Quassia, saltpetre, calcium carbonate, sodium hyposulphite, salt, copperas, Venetian red, ground cottonseed hulls, nux vomica |
| Hess & Clark, Dr., Ashland, Ohio ††Dr. Hess Poultry Pan-a-cce-a ²⁹¹ | 7758 | 6777 | Edw. F. Goeke Co., Evansville | 9.9 | 1.0 | 0.8 | 2.0 | 3.5 | --- |

| | | | | | | | | | | |
|---|------|------|---|-------|------|-----|-------------|------|------|--|
| Kutz-Bronson Medicine Company, Kirklin, Ind. | 4357 | 6370 | Manufacturers | ----- | 7.4 | 5.0 | 5.3 | 14.0 | 35.1 | Gentian, ginger, capsicum, fenugreek, Venetian red, epsom salts, linseed cake, beef scrap, blood meal, bone meal, 0.6% sulphur. Cantharides guaranteed but not identified |
| Universal Products Company, Fairmount, W. Va. | 7698 | 5908 | Davis & Phillips, Oaktown | ----- | 8.2 | 0.0 | 1.9 | 3.5 | 9.0 | Mustard, capsicum, Venetian red, copperas, oyster shells, wheat bran, middlings, 1.2% salt |
| HUproco Poultry Tonic | 7693 | 6243 | Manufacturers | ----- | 10.3 | 4.0 | 4.6 | 12.0 | 12.0 | Gentian, ginger, dandelion, 0.2% salt, charcoal, quassia, grain screenings, cracked corn, oats, corn feed meal, corn bran, wheat bran, middlings, linseed meal, cottonseed meal, corn gluten feed, corn germ meal. Fenugreek, cascarella, elecampane, blood root, golden seal, bitter sweet, caraway, mandrake, copperas, Venetian red, guaranteed but not identified |
| Columbian Hog & Cattle Powder Company, Kansas City, Mo. | --- | 5362 | Columbian Hog & Cattle Powder Co., Indianapolis | ----- | 9.4 | --- | 3.2 | --- | 13.8 | Wheat middlings, bone, charcoal, copperas, pepper, probably epsom salts. Venetian red |
| Crown Chemical Company, The, Anderson, Ind. | --- | 5342 | Manufacturers | ----- | 10.6 | --- | 2.2 | --- | 14.1 | Wheat middlings, flaxseed meal, 10.3% sulphur, charcoal, epsom salts, ginger |
| Royaleum Cooperative Mfg. Company, Monticello, Ind. | --- | 6059 | Deem & Tomlinson, Summitville | ----- | 0.0 | --- | 29.4 0.1 | --- | 0.0 | Venetian red, air-slaked lime, small amount epsom salt |
| Security Remedy Company, Minneapolis, Minn. | --- | 5444 | Star Milling Co., Aurora | ----- | 6.8 | --- | 2.0 | --- | 9.0 | Wheat middlings, ground screenings, copperas, charcoal, gentian, pepper, 6.5% sulphur |
| Sturtevant Company, The F. C., Hartford, Conn. | --- | 8120 | Marion J. Yoder, Goshen | ----- | 3.2 | --- | 0.9 | --- | 7.6 | Wheat middlings, pepper, oyster shell, bone, glauber's salt, Venetian red, 1.16% sulphur |
| The Sturtevant Poultry Tonic | --- | 8121 | Marion J. Yoder, Goshen | ----- | 7.1 | --- | 4.1 | --- | 14.2 | Wheat middlings, capsicum, oyster shell, Venetian red, glauber's salt |
| Talbott Chemical Company, W. B., Sandusky, Ohio | --- | 6099 | Storts & Son, Van Buren | ----- | 8.2 | --- | 0.8 | --- | 16.9 | Linseed meal, pepper, Venetian red, sulphur, 2.4% salt, epsom salts, copperas |
| Talbott's Little Giant Poultry Regulator | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

* Not tagged

†† Not tagged.

285 2.4% sulphur removed from ether extract

286 3.6% sulphur removed from ether extract

287 4% sulphur removed from ether extract

288 5% sulphur removed from ether extract

289 Resin included

290 Nitrogen present in saltpetre included in crude protein

291 Nitrogen present in saltpetre included in protein

292 0.6% sulphur removed from ether extract

293 10.3% sulphur removed from ether extract

294 Not fat

295 6.5% sulphur removed from ether extract

296 1.16% sulphur removed from ether extract

297 2.3% sulphur removed from ether extract

TABLE IV.—Report of Inspection of Feeds Collected, January 1, 1917 to January 1, 1918 (continued)

| Label | Number | | Sample secured from | Moisture per cent. | Crude fat per cent. | | Crude protein per cent. | | Principal ingredients identified In this column inferior materials present but not guaranteed are classed as adulterants |
|--|----------|--------------|--|--------------------|---------------------|-------|-------------------------|-------|---|
| | Official | D Inspection | | | Guaranteed | Found | Guaranteed | Found | |
| MISCELLANEOUS | | | | | | | | | |
| Burch & Company, Inc., F. S., Chicago, Ill. | --- | 7836 | C. J. Loyd & Co., Greensburg | 0.9 | --- | 0.2 | --- | 2.9 | Salt (79.85%), sodium sulphate, cocoa shells, gentian |
| **Butter Lick Salt Brick | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Fairy Dock Fish Market, Port Huron, Mich. | --- | 6397 | E. W. Eastes, Greenfield | 5.2 | --- | 2.3 | --- | 8.1 | Sawdust, sand, probably cucumber seed, traces of corn, wheat, fish |
| **Damaged Beans, Corn, Peas, With Bran & Fish Scraps | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| McMillen Company, Fort Wayne, Ind. | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Light Corn Screenings | --- | 8366 | Manufacturers | 10.0 | --- | 2.7 | --- | 9.8 | Light corn screenings from immature corn |
| **Heavy Corn Screenings | --- | 8367 | Manufacturers | 10.4 | --- | 2.8 | --- | 10.0 | Heavy corn screenings from immature corn |
| **Cracked Corn from Corn Screenings | --- | 8368 | Manufacturers | 10.6 | --- | 2.9 | --- | 9.6 | Cracked corn, wheat, oats |
| Quaker Oats Company, The, Chicago, Ill. | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Rock River Fine Oat Meal | --- | 5611 | Kraus & Apfelbaum, Fort Wayne | 8.4 | --- | 5.0 | --- | 10.6 | Oat product consisting of fine, starchy material, small fragments of oat groats and considerable fuzzy material from oat groats |
| Maz-All Feed | 6889 | 7167 | J. C. Barrett, South Bend | 6.3 | 1.4 | 1.8 | 8.0 | 9.1 | Toasted corn flake by-product |
| †Maz-All Feed | 6889 | 7551 | Przybylsz Flour & Feed Co., South Bend | 6.7 | 1.4 | 1.8 | 8.0 | 9.8 | Same as D 7497 |
| **Oat Feed | --- | 8280 | Interstate Storage & Forwarding Co., Hammond | 4.0 | --- | 2.1 | --- | 6.2 | Oat hulls, shorts |
| Wagner-White Company, Inc., Jackson, Mich. | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Salvage Wheat & Corn Mixed | --- | 8371 | T. I. Ferris, Pleasant Lake | 9.3 | --- | 1.7 | --- | 13.2 | Salvage corn and wheat |
| Omaha Creamery Company, Omaha, Neb. | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dried Buttermilk | --- | 7154 | Fountain Produce Co., Veedsburg | 13.6 | --- | 5.4 | --- | 38.6 | Dried buttermilk |
| Mitchell, J. C., Chicago, Ill. | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Oat Feed | --- | 8175 | Maumee Valley Mills, New Haven | 6.0 | --- | 1.2 | --- | 3.9 | Oat feed, (oat hulls, shorts) |

* Not tagged

** Not registered

†† Not tagged. Labels furnished

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PURDUE UNIVERSITY

Agricultural Experiment Station

BULLETIN No. 218

AUGUST, 1918



Fig. 1. Feed grain in deep litter to insure exercise and proper digestion

THE VALUE OF SKIM-MILK AND MEAT SCRAPS FOR WHITE PLYMOUTH ROCKS

Published by the Station:
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THE VALUE OF SKIM-MILK AND MEAT SCRAPS FOR WHITE PLYMOUTH ROCKS

A. G. PHILIPS

SUMMARY

PART I—PULLETS

A Plymouth Rock pullet is an efficient transformer of raw material into a finished product.

The consumption of feed of the meat scraps pen was 97.63 pounds of feed per fowl at a cost of \$1.69; the no-meat-food pen was 83.24 pounds at a cost of \$1.37 and of the skim-milk pen 201.82 pounds at a cost of \$1.79. Of the feed consumed in the latter pen, 115.74 pounds was milk.

All birds tended to consume a similar amount of grains and mash regardless of whether they were good or poor layers.

It was the addition of skim-milk or meat scraps to the ration that increased the efficiency of the grain.

The cost of feeding a Plymouth Rock pullet on a good ration averaged about \$1.75 for the year 1916 but during 1917, this cost increased to nearly \$2.50.

It cost an average of \$0.155 to produce one dozen eggs in the skim-milk pen, \$0.152 in the meat scraps pen and \$0.275 in the check pen.

It cost less to feed a pullet when no skim-milk or meat scraps was fed, but it cost more to produce a dozen eggs.

The amount of dry matter required to produce one pound of eggs in the skim-milk pen was 4.9 pounds; in the meat scraps pen was 5.14 pounds, and in the no-meat-food pen was 9.57 pounds.

The egg production averaged 140.2 eggs per pullet for the skim-milk pen, 135.9 eggs per pullet for the meat scraps pen, and 61.2 eggs per pullet for the check pen.

All birds tended to lay the most eggs in or about the month of April whether well or poorly fed; whether good or poor layers.

The profit over feed in the skim-milk pen was \$1.59; in the meat scraps pen, \$1.62; and in the no-meat-food pen, \$0.05.

The feeding value of skim-milk for Plymouth Rock pullets was \$1.60 per hundred pounds and of meat scraps was \$20.03 per hundred pounds.

The meat scraps pen produced better fertility but not as good hatching power of eggs as the skim-milk pen.

Birds receiving neither skim-milk nor meat scraps produced eggs of the best fertility.

A Plymouth Rock pullet produces about 27 pounds of manure in a year at night.

The method of feeding had no influence on the health or mortality of the flock.

PART II—HENS

Under normal conditions, hens consume about as much food as pullets.

Hens that were starved for animal protein as pullets, increased their consumption of everything as hens, when fed milk in abundance.

It cost but slightly less to feed a hen than a pullet.

When fowls had sufficient animal protein all their lives they normally laid less eggs as hens than as pullets.

Fowls that did not receive sufficient animal protein as pullets laid poorly, but when given skim-milk as hens they laid as many, if not more, eggs than pullets normally did.

A fowl's egg capacity cannot be judged by the number of eggs she laid unless she received a normal ration.

The no-meat-food pullets molted early and were in full new feathers by October. When skim-milk was added to their ration in November, they responded quickly by laying more winter eggs as hens than any fowls did as pullets.

Early molting indicates poor laying, but it may not indicate poor laying capacity.

Hens not fed milk as pullets produced more income and profit over feed as hens, than did milk-fed pullets.

Hens seemed to produce better fertility than pullets, but showed little improvement in hatching power of eggs.

PART I—PULLETS

INTRODUCTION

Feeding experiments with poultry at this institution began in 1910 and the first four years' work was published in Bulletin No. 182, November, 1915. Work of a similar nature has been continued and this publication gives the results of some of the experiments.

The object of this experiment was to obtain the feeding values of commercial meat scraps and sour skim-milk with White Plymouth Rock pullets. Similar work has been carried on with White Leghorns and it seemed necessary to know if like results would be found with a heavier breed.

TIME

The different experiments were conducted between the following dates:

Experiment No. 1, December 1, 1914 to November 30, 1915

Experiment No. 2, November 3, 1915 to November 2, 1916

Experiment No. 3, November 3, 1916 to November 2, 1917

The work was repeated for three years in order to make the results more indicative and conclusive.

HOUSING AND YARDING

The pens were each 10 feet by 12 feet, built in pairs, with concrete floors, muslin and glass fronts, Purdue trap nests and were modern in every way.

Each pen had a yard 130 feet by 150 feet in area planted to young fruit trees. An eight feet strip of sod was maintained around each lot;

four rows of corn were grown between the trees in the summer and a rye cover crop planted over the entire area in the fall. This made what was thought to be as near ideal farm conditions for poultry as it was possible to obtain on a new experimental farm. The lots were naturally devoid of trees, and the soil was made up of Sioux sandy loam. This was first class for poultry, but poor land on which to raise crops. The houses faced the south and the land gently sloped to the north.



Fig. 2. A flock of pullets in the experiment and the type of open-front house used

STOCK

The stock in Experiment No. 1 was White Plymouth Rock pullets purchased from a farm in Indiana and in Experiments Nos. 2 and 3 was of the same variety hatched on the Purdue farm. There were 30 pullets in each flock and were as nearly alike in size, vigor and development as was possible to obtain them. Experiment No. 1 was not started until December 1, because the pullets were hatched a little late, and were not ready to lay in November. In the other two experiments, the chicks were artificially hatched and brooded in March, reared on good free range and were matured by November 1. In Experiment No. 1, cockerels were used in each pen and in Experiments Nos. 2 and 3, two cock birds were used. These males were changed from pen to pen every few days, so as to eliminate any influence on fertility or "hatchability" through the medium of the ration or any individual male.

RATIONS AND FEEDS

The rations used were practically the same as those used in the preceding experiments with the Leghorns and seemed to be easily obtained throughout Indiana. No ration will ever be worked out that is

perfect and it was the plan of the Purdue Poultry Department to use such feeds as were grown in Indiana and mixed in the most practical way. The rations were as follows:

| Skim-milk Pens | Meat Scraps Pen | Check Pens |
|---------------------|------------------------|-----------------|
| Grain | Grain | Grain |
| 10 pounds corn | 10 pounds corn | 10 pounds corn |
| 10 pounds wheat | 10 pounds wheat | 10 pounds wheat |
| 5 pounds oats | 5 pounds oats | 5 pounds oats |
| Mash | Mash | Mash |
| 5 pounds bran | 5 pounds bran | 5 pounds bran |
| 5 pounds shorts | 5 pounds shorts | 5 pounds shorts |
| and | 3.5 pounds meat scraps | |
| 50 pounds skim-milk | | |

In making up the rations, the plan was to use the meat scraps ration as a basis and supply as much protein in the skim-milk as in the meat scraps ration. The meat scraps were obtained from a commercial packing house in large enough quantities to last for three years so that the same could be used throughout all experiments. The skim-milk was purchased from the Purdue Dairy Department weekly and was considered fairly uniform in composition. It was estimated from analyses made, that 50 pounds of skim-milk contained the same amount of protein as 3.5 pounds of the meat scraps used. Wherever possible, the grains were bought in large lots from nearby farms and the other feeds were obtained from local elevators.

During the winter, the corn was increased to 15 pounds, the wheat reduced to five pounds and in the fall, one pound of oil meal was added. Grit, oyster shell and dry ground bone were always available, as was also the water, except in the skim-milk pen. When the birds were not on range, mangel-wurzels were used as green feed. The bran and shorts were fed together as a dry mash and the grains were mixed and fed together. The skim-milk was fed in an open pan and the meat scraps mixed with the mash.

PRICES OF FEEDS

The prices of the feeds as charged were the same as those paid for the feeds. They varied from month to month, although the feeds bought in quantity remained the same for several months. The following statement shows prices for the feeds during the three experiments. Every effort was made to buy feed as economically as possible.

Minimum and Maximum Prices of Feeds per One Hundred Pounds

| Feed | Experiment No. 1 | Experiment No. 2 | Experiment No. 3 |
|-------------------|------------------|------------------|------------------|
| Corn ----- | \$1.25-\$1.44 | \$1.25-\$1.71 | \$1.71-\$3.75 |
| Wheat ----- | 1.25- 2.16 | 1.60- 2.10 | 2.10- 3.55 |
| Oats ----- | 0.94- 1.66 | 0.94- 1.37 | 1.37- 1.50 |
| Bran ----- | 1.50 | 1.25- 1.50 | 1.50- 2.35 |
| Shorts ----- | 1.60- 1.70 | 1.35- 1.70 | 1.70- 2.85 |
| Oil meal ----- | 1.80 | 1.80- 1.95 | 1.95- 2.85 |
| Skim-milk ----- | 0.30 | 0.30 | 0.30- 0.50 |
| Meat scraps ----- | 2.60 | 2.60 | 2.60 |
| Grit ----- | 0.53 | 0.54- 0.59 | 0.59- 0.66 |
| Shell ----- | 0.53 | 0.54- 0.59 | 0.59- 0.66 |
| Bone ----- | 2.25- 3.50 | 2.25 | 2.25- 2.35 |

METHODS OF FEEDING AND CARE

The mixed grains were placed in a bucket in each pen and the dry mash put into a hopper. The feeding was so managed that the grain and dry mash were both consumed in the same length of time, thus insuring an even balancing of the ration. There was little trouble in keeping the balance, although care had to be given to insure the same. The grain

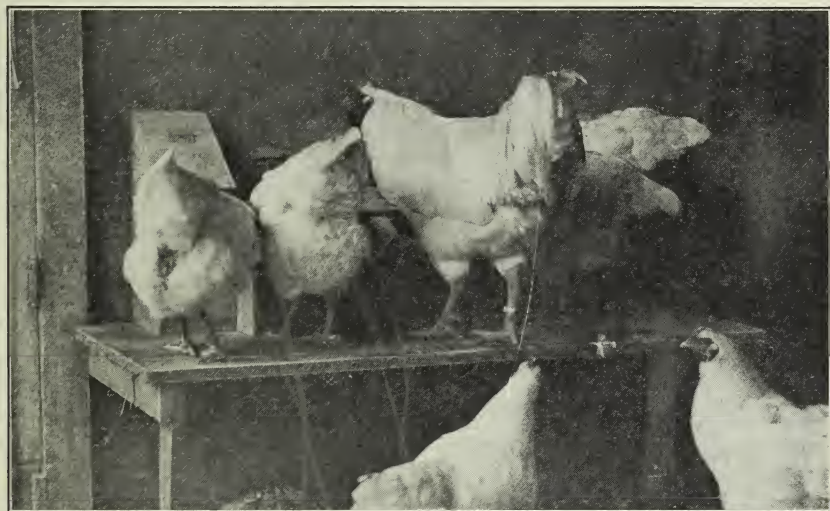


Fig. 3. Dry mash and grit should be fed in hoppers upon platforms above the floor in order to economically use the floor space

fed in the early morning was scattered in a deep straw litter, and in the evening the birds were given all they would clean up. This meant about one-third of the grain in the morning and two-thirds in the evening, thus increasing the appetite for the mash throughout the day. The dry mash and skim-milk were always accessible and green feed was given when the birds could not obtain it in the yards. Free range over the large lots

was allowed except for a few cold weeks in winter and the birds were always contented. The curtains over the open fronts were closed at night in cold weather and used as outside awnings in the summer. The same man took care of all pens and every care was given to prevent lice, mites, etc., and to insure sanitation.

WEIGHTS AND RECORDS

A record was made of the feed when it was weighed into vessels and placed in the pens. At the end of each seven-day period, that which was not consumed was weighed back, thus permitting feed consumption to be recorded on the weekly basis. Trap nest records were kept of all the eggs for each year and were recorded in both weekly and monthly periods. The trap nests were examined three to five times daily, depending on the season and heaviness of egg production. At the end of each weekly period, the droppings that had collected on the dropping boards, were weighed. The birds were checked up at short intervals and weighed at the close of each month. Fertility and "hatchability" figures were kept of all eggs set during the hatching season.

TABLE I.—Average Consumption of All Feeds, per Bird, in Pounds

| Feed | Skim-milk pen | | | Meat scraps pen | | | Check pen | | |
|--------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | Experiment No. 1 | Experiment No. 2 | Experiment No. 3 | Experiment No. 1 | Experiment No. 2 | Experiment No. 3 | Experiment No. 1 | Experiment No. 2 | Experiment No. 3 |
| Corn ----- | 26.96 | 32.31 | 34.13 | 27.51 | 33.41 | 37.58 | 26.77 | 30.51 | 33.50 |
| Wheat ----- | 15.19 | 15.17 | 14.86 | 15.26 | 16.35 | 16.13 | 15.60 | 14.25 | 14.66 |
| Oats ----- | 10.54 | 11.87 | 12.24 | 10.69 | 12.44 | 13.43 | 10.59 | 11.19 | 12.04 |
| Bran ----- | 10.51 | 11.83 | 12.25 | 10.67 | 12.46 | 13.43 | 10.55 | 11.19 | 12.03 |
| Shorts ----- | 10.51 | 11.83 | 12.25 | 10.67 | 12.46 | 13.43 | 10.55 | 11.19 | 12.03 |
| Oil meal ----- | 0.42 | 0.42 | 0.49 | 0.45 | 0.48 | 0.50 | 0.48 | 0.36 | 0.48 |
| Total ----- | 74.13 | 83.43 | 86.22 | 75.25 | 87.60 | 94.5 | 74.54 | 78.69 | 84.74 |
| Skim-milk ----- | 105.21 | 119.09 | 122.93 | | | | | | |
| Meat scraps ----- | | | | 7.47 | 8.72 | 9.40 | | | |
| Grit ----- | 1.26 | 0.8 | 1.78 | 0.87 | 0.52 | 0.61 | 1.22 | 1.08 | 1.43 |
| Oyster shell ----- | 2.45 | 2.39 | 2.17 | 2.28 | 2.12 | 1.89 | 1.60 | 1.46 | 1.51 |
| Ground bone ----- | 1.08 | 0.8 | 1.78 | 0.68 | 0.52 | 0.61 | 1.04 | 1.08 | 1.43 |
| Grand total ----- | 184.13 | 206.51 | 214.88 | 86.55 | 99.48 | 107.01 | 78.4 | 82.31 | 89.11 |

Table I is used largely to illustrate the variation in consumption within the same breed from year to year. The relative consumption of one pen with another within the same experiment was rather regular, the meat scraps pen always consuming the most of the chief feeds and the check pen always using the least. There was no definite relation between the amount of food consumed and the egg production. In practically every year, the check pen consumed as much grain and mash as the skim-milk pen.

TABLE Ia.—Average Consumption of All Feeds, per Bird, in Pounds
Average of Three Years of Each Experiment

| Feed | Skim-milk pen | Meat scraps pen | Check pen |
|--------------------|---------------|-----------------|-----------|
| Corn ----- | 31.13 | 32.83 | 30.26 |
| Wheat ----- | 15.07 | 15.91 | 14.83 |
| Oats ----- | 11.55 | 12.18 | 11.27 |
| Bran ----- | 11.53 | 12.18 | 11.25 |
| Shorts ----- | 11.53 | 12.18 | 11.25 |
| Oil meal ----- | 0.44 | 0.47 | 0.44 |
| Total ----- | 81.25 | 85.75 | 79.30 |
| Skim-milk ----- | 115.74 | | |
| Meat scraps ----- | | 8.53 | |
| Grit ----- | 1.28 | 0.66 | 1.24 |
| Oyster shell ----- | 2.33 | 2.09 | 1.52 |
| Ground bone ----- | 1.22 | 0.60 | 1.18 |
| Grand total ----- | 201.82 | 97.63 | 83.24 |

The average of the three years' feeding with each pen is shown in Table Ia. It is easier to compare pens when the averages are examined. There was a remarkable similarity in the amounts of grain and mash feed eaten in all three pens, which is of particular interest when the egg production is noted in Table IV. Plymouth Rocks will use about 100 pounds of feed in a year, where feed lots and manure piles are not available. A Plymouth Rock will consume over 100 pounds of skim-milk to take the place of 8.5 pounds of meat scraps. Although grit, shell and ground bone were always available, the actual amount eaten in one year was very small. No reason is known why there should have been so much variance between the meat scraps pen and the other pens.

TABLE II.—Cost of Feed per Bird, per Year, and Cost of Producing
One Dozen Eggs

| Experiment No. | Skim-milk pen | | Meat scraps pen | | Check pen | |
|----------------|---------------|---------------------|-----------------|---------------------|-----------|---------------------|
| | Cost feed | Cost one dozen eggs | Cost feed | Cost one dozen eggs | Cost feed | Cost one dozen eggs |
| 1 | \$1.41 | \$0.123 | \$1.34 | \$0.14 | \$1.14 | \$0.261 |
| 2 | 1.52 | 0.138 | 1.46 | 0.131 | 1.12 | 0.227 |
| 3 | 2.46 | 0.206 | 2.29 | 0.186 | 1.86 | 0.337 |
| Average | \$1.79 | \$0.155 | \$1.69 | \$0.152 | \$1.37 | \$0.275 |

Table II shows each year's costs and the average of the three years. Feed costs steadily increased from one year to the next but they were rather consistent in each pen. In each experiment, the skim-milk pen cost slightly more than the meat scraps pen and a great deal more than the

check pen. Feed prices have risen a great deal since these experiments were conducted but the comparison of costs within the same year are indicative. The meat scraps pen was cheaper to feed than the skim-milk pen and but little more expensive than the check pen. It cost \$0.155, \$0.152 and \$0.275 to produce a dozen eggs in the skim-milk, meat scraps and check pens respectively. Few people in Indiana sold eggs during the three years of the experiment at an average above \$0.275 per dozen and if they fed no-meat-food and the egg production was low, there was little chance for profit. A high total feed cost may reduce the cost per dozen eggs if the egg production is high, and in the case of these experiments it was a good investment to buy skim-milk and meat scraps. In comparing the meat scraps and no-meat-food pens, it is found that an increase of \$0.32 worth of feed per hen reduced the cost per dozen eggs from \$0.275 to \$0.152.

TABLE III.—Average Number Pounds of Feed to Produce One Pound of Eggs

| Experiment No. | Skim-milk pen | Meat scraps pen | Check pen |
|----------------|---------------|-----------------|-----------|
| 1 | 10.91 | 5.99 | 11.8 |
| 2 | 12.31 | 5.76 | 10.6 |
| 3 | 11.69 | 5.64 | 10.19 |
| Average | 11.63 | 5.79 | 10.86 |

TABLE IIIa.—Number Pounds Dry Matter¹ Required to Produce One Pound of Eggs

| Experiment No. | Skim-milk pen | Meat scraps pen | Check pen |
|----------------|---------------|-----------------|-----------|
| 1 | 4.54 | 5.19 | 10.18 |
| 2 | 5.22 | 5.17 | 9.45 |
| 3 | 4.95 | 5.08 | 9.09 |
| Average | 4.9 | 5.14 | 9.57 |

¹ Shell, grit and bone not included

The hen is an economical transformer of raw material into a finished product and in Table III this is shown. The consumption did not vary much from year to year but stayed closely to the average. Due to the large amount of water in milk, it was hardly fair to compare one ration with another without reducing it to a dry basis and in Table IIIa, the amount of dry matter to produce one pound of eggs indicates similar efficiency between the skim-milk and meat scraps pens. So far as efficiency of production is concerned, there is no practical difference between skim-milk and meat scraps, providing the same amount of protein is considered.

TABLE IV.—Average Number of Eggs per Pullet, per Pen, per Year

| Experiment No. | Skim-milk pen | Meat scraps pen | Check pen |
|----------------|---------------|-----------------|-----------|
| 1 | 138.7 | 119.2 | 54.3 |
| 2 | 135.9 | 137.8 | 61.4 |
| 3 | 146.2 | 150.7 | 67.9 |
| Average | 140.2 | 135.9 | 61.2 |

Table IV gives the figures that are most important in the experiment, the egg production per pullet. There was a slight variation from year to year making three trials necessary before a fair average could be shown. The skim-milk pen varied the least and the check pen varied but little more. The meat scraps pen produced 19.5 eggs less than the skim-milk pen in Experiment No. 1 and 1.8 and 4.5 eggs more in Experiments Nos. 2 and 3, the variation from Experiment No. 1 to No. 3 being 31.5 eggs. Such variation might be expected, due to yearly climatic differences and individuality of the hens. The average of the three years is indicative and places the two protein-fed pens as very similar in egg producing power and far more efficient than the non-protein-fed pen. On the basis of egg production, the amount of skim-milk and meat scraps fed caused an increase in egg production of 79.0 and 74.7 eggs.

TABLE V.—Average Per cent. Egg Production per Month, per Pullet—Three Years

| Month | Skim-milk pen | | | | Meat scraps pen | | | | Check pen | | | |
|-----------------|--|--|--|---------------------------|--|--|--|---------------------------|--|--|--|---------------------------|
| | Ex- peri- ment No. 1 ¹ | Ex- peri- ment No. 2 ² | Ex- peri- ment No. 3 ² | Aver- age ³ | Ex- peri- ment No. 1 ¹ | Ex- peri- ment No. 2 ² | Ex- peri- ment No. 3 ² | Aver- age ³ | Ex- peri- ment No. 1 ¹ | Ex- peri- ment No. 2 ² | Ex- peri- ment No. 3 ² | Aver- age ³ |
| November ----- | | 10.0 | 8.8 | 9.4 | | 19.0 | 13.0 | 14.0 | | 10.0 | 2.0 | 6.0 |
| December ----- | 0.9 | 8.0 | 20.0 | 9.6 | | 13.0 | 29.0 | 14.0 | | 6.0 | 10.0 | 5.3 |
| January ----- | 2.6 | 14.5 | 29.7 | 15.6 | 1.7 | 16.9 | 27.8 | 15.4 | | 8.7 | 31.5 | 13.4 |
| February ----- | 18.0 | 25.6 | 29.0 | 24.2 | 13.0 | 31.0 | 38.0 | 27.3 | 13.0 | 22.0 | 20.7 | 18.5 |
| March ----- | 61.0 | 58.0 | 57.0 | 58.6 | 40.0 | 61.0 | 58.9 | 53.3 | 23.0 | 29.0 | 49.0 | 33.6 |
| April ----- | 70.0 | 68.9 | 68.0 | 68.9 | 69.0 | 65.0 | 57.8 | 63.9 | 42.0 | 38.9 | 44.8 | 41.9 |
| May ----- | 60.0 | 62.0 | 63.0 | 61.6 | 61.0 | 62.0 | 59.0 | 60.6 | 21.0 | 41.0 | 12.7 | 24.9 |
| June ----- | 58.0 | 62.6 | 56.7 | 59.1 | 60.0 | 57.0 | 56.0 | 57.6 | 30.0 | 29.0 | 17.0 | 25.3 |
| July ----- | 50.0 | 40.0 | 51.9 | 47.3 | 52.0 | 36.0 | 51.0 | 46.3 | 10.0 | 4.6 | 15.5 | 10.0 |
| August ----- | 45.0 | 41.0 | 37.0 | 41.0 | 43.0 | 31.0 | 38.0 | 37.3 | 11.0 | 0.1 | 8.5 | 6.5 |
| September ----- | 38.0 | 37.0 | 34.0 | 36.3 | 23.0 | 34.0 | 45.0 | 34.0 | 6.8 | 3.5 | 4.0 | 4.7 |
| October ----- | 39.0 | 20.0 | 24.0 | 27.6 | 25.0 | 22.9 | 22.8 | 23.5 | 8.4 | 1.3 | 7.0 | 5.5 |
| November ----- | 17.0 | 36.0 | 8.0 | 20.3 | 6.0 | 10.0 | 15.0 | 10.3 | 7.7 | | 7.0 | 2.8 |

¹ Experiment No. 1 began December 1

² Experiments Nos. 2 and 3 began November 3. Egg production is figured for 27 days and also for three days

³ Average of the three monthly per cents

In Table V is found the average monthly egg production of each pen and the average of the years.

By percentage egg production is meant the per cent. of production based on one egg each day per bird as a maximum or 100 per cent. If a fowl lays an egg every other day, her egg production would be 50 per cent. It is by per cent. egg production that the ability of the birds to lay is measured. The birds of Experiment No. 1 were late in maturing and so the winter egg production was low in all pens. This shortage was made up somewhat during the spring and summer, but it is winter egg production that helps to insure profit and feeding alone can not make this production. It will be noted that each year there was a better winter egg production and the general tendency was for the total egg production to increase in a like manner. Such figures support the belief that winter egg production is directly indicative of yearly production; that early hatched, well matured pullets are necessary for good egg production and that even the best ration is reduced in its efficiency if fed to poor stock. The meat scraps pen laid slightly better in winter than the skim-milk pen, but the differences were slight and to be expected.

If birds do not measure up to egg production somewhat similar or better than the one discussed, something is wrong with the management. Many flocks have done better than these but the figures indicate results possible for the farmer, and which he should strive to obtain.

TABLE VI.—Average Price in Cents, per Month, of Eggs Sold from the Purdue Farm

| Month | Experiment No. 1 | Experiment No. 2 | Experiment No. 3 |
|-----------------|------------------|------------------|------------------|
| November ----- | | 45 | 45 |
| December ----- | 43 | 42 | 55 |
| January ----- | 42 | 38 | 48 |
| February ----- | 31 | 32 | 42 |
| March ----- | 20 | 23 | 28 |
| April ----- | 20 | 20 | 32 |
| May ----- | 20 | 20 | 34 |
| June ----- | 20 | 21 | 30 |
| July ----- | 22 | 23 | 33 |
| August ----- | 24 | 26 | 37 |
| September ----- | 27 | 38 | 55 |
| October ----- | 32 | 50 | 60 |
| November ----- | 52 | | |

Table VI is given to show the average monthly price received for eggs from the Purdue farm during the three years of the experiment. In Experiment No. 2 the eggs brought an increased price over Experiment No. 1 and in the third experiment, egg values rose greatly. This increase was absolutely necessary if the feed situation was to be met, and up to the close of the experiments, these egg prices were in proportion to feed prices. Beginning in October and extending to March each year, Purdue eggs were sold in Connecticut to a distributor, bringing a net income greater than could be obtained through the ordinary market channels in Indiana. During the spring and summer months, the eggs were sold in Indianapolis. Such prices as these cannot be realized by the farmer if he produces in less than case lots and sells to a gatherer or local

grocer. The Purdue eggs were shipped in lots of 30 dozen or more at a time, were strictly fresh, clean and well graded. The profits from good feeding may be made possible only through good marketing.

TABLE VII.—Average Income and Profit Over Feed, per Pullet, per Year

| Experiment No. | Skim-milk pen | | Meat scraps pen | | Check pen | |
|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|
| | Average income | Average profit | Average income | Average profit | Average income | Average profit |
| 1 | \$2.769 | \$1.303 | \$2.232 | \$0.832 | \$1.832 | \$0.137 |
| 2 | 2.991 | 1.417 | 3.11 | 1.60 | 1.318 | 0.154 |
| 3 | 4.573 | 2.057 | 4.793 | 2.445 | 2.072 | 0.162 |
| Average | \$3.444 | \$1.592 | \$3.378 | \$1.625 | \$1.479 | \$0.059 |

In Table VII, the final outcome of the whole experiment is shown by the figures of income and profit. In figuring the income, the prices received for the general sale of eggs from the farm were taken as proper figures to use.

Profit is a much misused and misunderstood term. Profit should mean the difference between the income and all legitimate expense. With poultrymen, the tendency is to figure the difference between income and the feed bill as a profit. There are various reasons for not using profit in Table VII as it should be. In the first place, labor is a varying item and no data are available showing the average cost of caring for poultry on the farm. It would seem better to leave labor out and credit all profit as labor income. Too few data are available on the value of poultry manure, to warrant giving credit for it on the income side. These conditions made it necessary, in this publication, to ignore labor and value of manure, and consider only profit over cost of feed.

The income was directly in proportion to the egg production, the greater the egg production, the larger the income and the heavier the profit. No comparison can be made of one year with another because of the great differences in egg and feed prices, but one pen can be compared with another. The average income and profit of the skim-milk and meat scraps pens were so nearly alike that the differences are negligible, but the financial accounts of the no-meat-food pens are worthy of observation. The cost of protein feeds is considerable and some people deem it an unnecessary expenditure, but there is no argument but that it was unprofitable in these experiments not to provide milk and meat scraps. While their absence from the ration reduced the cost, it so cut down the income that there was practically no profit and in Experiment No. 1 there was an actual loss.

It is profitable to feed skim-milk or meat scraps in a laying ration for Plymouth Rock pullets.

TABLE VIII.—Summary of Averages

| | Skim-milk pen | Meat scraps pen | Check pen |
|---|------------------|--------------------|--------------|
| Total number pounds feed consumed per bird.. | 201.82 | 97.63 | 83.24 |
| Cost of feed per bird | \$1.79 | \$1.69 | \$1.37 |
| Cost of producing one dozen eggs | 0.155 | 0.152 | 0.275 |
| Number pounds of dry matter to produce one pound of eggs | 4.9 | 5.14 | 9.57 |
| Eggs per pullet | 140.2 | 135.9 | 61.2 |
| Income per bird | \$3.444 | \$3.378 | \$1.479 |
| Profit over feed per bird | 1.592 | 1.625 | 0.059 |

Table VIII summarizes the figures of the preceding tables and shows by bringing them together, still more plainly the contrast between the results of pens fed a sufficient amount of protein and the pen lacking it. Figures from the experiment so far as the dollars are concerned cannot be closely applied at present because of the national feed problem, but the comparisons are of value any time. An addition of animal protein increases the appetite, consumption, feed bill and cost of production, but causes a larger egg yield and profit.

TABLE IX.—Feeding Values of Protein Feeds per Hundred Pounds

| Experiment No. | Skim-milk | Meat scraps |
|----------------|-----------|-------------|
| 1 | \$1.55 | \$15.10 |
| 2 | 1.31 | 18.80 |
| 3 | 1.94 | 26.20 |
| Average | \$1.60 | \$20.03 |

In Table IX the figures indicate that the feeding value of skim-milk for laying Plymouth Rock pullets was \$1.60 and of meat scraps was \$20.03 per hundred pounds. This means that for every \$0.30 invested in skim-milk \$1.60 was returned and for every \$2.50 invested in meat scraps, \$20.03 was returned.¹ This does not mean a person can pay \$20.03 per hundred pounds for meat scraps and still have a profit, for these feeding values if included in the cost would have allowed no profit. The figures show that it is often profitable to spend money, if done wisely.

¹ For method of determining these figures see Purdue Bulletin No. 182

TABLE X.—Per Cent. Fertility and Hatching Power of Eggs

| Experiment No. | Fertility of eggs | | |
|----------------|-------------------|-----------------|-----------|
| | Skim-milk pen | Meat scraps pen | Check pen |
| 1 | 74.0 | 81.0 | 81.0 |
| 2 | 76.0 | 80.7 | 82.9 |
| 3 | 80.7 | 87.1 | 88.8 |
| Average | 76.9 | 82.9 | 84.2 |

| Experiment No. | Hatching power of eggs | | |
|----------------|------------------------|-----------------|-----------|
| | Skim-milk pen | Meat scraps pen | Check pen |
| 1 | 52.0 | 42.6 | 56.0 |
| 2 | 57.4 | 54.4 | 52.6 |
| 3 | 63.7 | 52.7 | 53.5 |
| Average | 57.7 | 49.9 | 54.0 |

The fertility and hatching power of eggs from the different pens are shown in Table X. Some people believe that meat scraps injure the fertility of eggs and that eggs from heavy layers do not hatch as well as eggs from poor layers. At no time was the fertility particularly good. The no-meat-food pen did a little better each year than the other two pens, and the meat scraps pen was better every year than the skim-milk pen. When hatching power is considered, close correlation between high fertility and hatching power is not shown. In every year, the skim-milk pen hatched the best and in two experiments, the meat scraps pen hatched the poorest. In the average for the three years the skim-milk pen led, followed by the check pen. From the figures shown, even though lower than would be expected on the farms of Indiana, it would seem that for hatching purposes, milk was better than meat scraps. As before stated, all the birds were pullets, which might account for the low hatching power of the eggs.

TABLE XI.—Average Number Pounds of Manure Produced At Night

| Experiment No. | Skim-milk pen | Meat scraps pen | Check pen |
|----------------|---------------|-----------------|-----------|
| 1 | 27.3 | 27.1 | 26.8 |
| 2 | 27.2 | 26.9 | 30.7 |
| 3 | 23.8 | 28.1 | 29.5 |
| Average | 26.1 | 27.3 | 29.0 |

The amounts of manure produced during the nights as shown in Table XI were secured by weighing the roost collections every week. These, of course, varied, due to being frozen or to damp or dry weather. They cannot be considered accurate but indicate how much a bird does

return in fertility. If the night droppings are two-fifths of the whole amount, then 100 birds will return to the soil about three and one-half tons of highly nitrogenous fertilizer per year. The value of this manure will vary considerably but if credited at \$5.00 per ton it will help pay expenses.

TABLE XII.—Mortality of Birds in Pens

| Experiment No. | Skim-milk pen | Meat scraps pen | Check pen |
|----------------|---------------|-----------------|-----------|
| 1 | 5 | 10 | 6 |
| 2 | 8 | 3 | 10 |
| 3 | 1 | 4 | 2 |
| Average | 4.6 | 5.6 | 6.0 |

The figures in Table XII do not indicate that the rations fed had any influence on the health of the birds. It is quite a problem to keep fowls under experimental conditions, even at the best, and keep the average loss at 10 or 12 per cent. as most commercial poultrymen figure. No disease broke out in the flocks, but occasionally a bird died from reproductive troubles or intestinal complications when no other bird had been ill for weeks. In Experiment No. 3, the birds were the best physically of any in the experiments and consequently the losses were low.

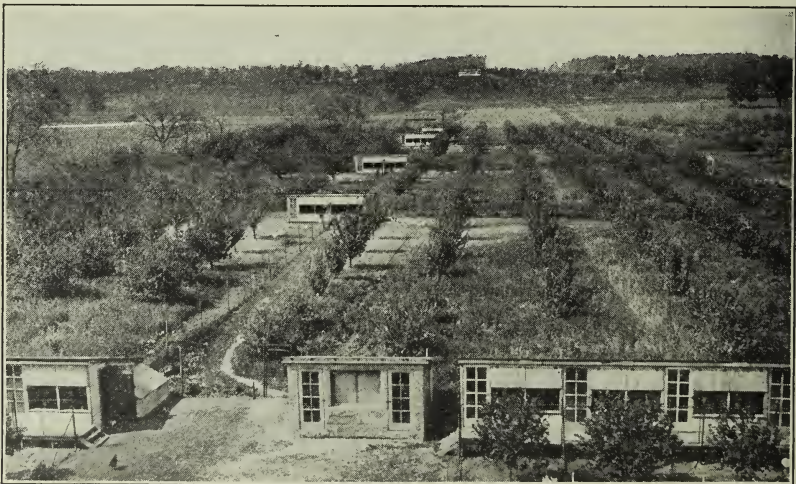


Fig. 4. Birds-eye view of Purdue Poultry farm, showing lay-out of experimental houses and yards. Note natural environment made by fruit trees, grass plots and abundance of range

PART II—HENS

INTRODUCTION

At the close of Experiments Nos. 1 and 2 described in Part I of this bulletin, the question arose as to whether or not the poor egg production in the no-meat-food pens had been due to the lack of animal protein or to poor laying powers of the birds concerned. In order to determine this point, the pullets in the no-meat-food or check pens finishing the first years were, as hens, put on to the skim-milk ration and the skim-milk-fed birds continued on their own ration for another year.

The birds were housed, yarded, fed and handled the same as when they were pullets, and it was thought that any differences that might be produced must come from the presence or absence of skim-milk.

TABLE I.—Average Consumption of All Feeds per Bird, in Pounds, as Hens and Pullets—Two Years

| Feed | Skim-milk pen hens | Skim-milk pen pullets | Check pen hens | Check pen pullets |
|--------------------------|-----------------------|--------------------------|-------------------|----------------------|
| Corn ----- | 31.59 | 31.13 | 33.28 | 30.26 |
| Wheat ----- | 12.74 | 15.07 | 14.57 | 14.83 |
| Oats ----- | 11.33 | 11.55 | 11.96 | 11.27 |
| Bran ----- | 11.32 | 11.53 | 11.96 | 11.25 |
| Shorts ----- | 11.32 | 11.53 | 11.96 | 11.25 |
| Oil meal ----- | 0.75 | 0.44 | 0.78 | 0.44 |
| Total ----- | 79.05 | 81.25 | 84.51 | 79.30 |
| Skim-milk ----- | 113.15 | 115.74 | 119.59 | |
| Grit ----- | 0.66 | 1.28 | 0.63 | 1.24 |
| Oyster shell ----- | 2.12 | 2.33 | 1.52 | 2.53 |
| Ground bone ----- | 0.66 | 1.22 | 0.63 | 1.18 |
| Grand total ----- | 195.64 | 201.82 | 207.89 | 83.24 |

Table I shows the average consumption of feed by the same birds as pullets and as hens. It must be remembered that the check pen pullets received no milk but that as hens they obtained as much milk in the ration as the milk-fed pen. For the sake of distinguishing the pens, the "check pen" retained that title in both years.

The difference in consumption of the chief feeds, between the check and skim-milk pullets is very small, and when the difference in egg production is recalled, it appears as if it was the relatively small amount of animal protein added that caused the egg production. Egg production is not always a question of amount consumed, as it is the kind of feed consumed. Heavy laying does require increased feed above normal but it must be of the right kind.

The difference in feed consumed in the skim-milk pen both as hens and pullets is very slight. The check pen did consume slightly more of the chief feeds and an abundance of milk when given an opportunity. As will be noted in Table III, the check pen hens laid more than the pullets. This was due to the skim-milk. Animal protein stimulates appetite and

since the ration was balanced, more of the grain was eaten. An abundance of grain supplemented by skim-milk will produce eggs.

TABLE II.—Cost of Feed, per Bird, per Year, and Cost of Producing One Dozen Eggs

| Experiment No. | Hens—Skim-milk pen | | Hens—Check pen | | Pullets—Skim-milk pen | |
|----------------|--------------------|---------------------|----------------|---------------------|-----------------------|---------------------|
| | Cost feed | Cost one dozen eggs | Cost feed | Cost one dozen eggs | Cost feed | Cost one dozen eggs |
| 1 | \$1.43 | \$0.178 | \$1.50 | \$0.149 | \$1.52 | \$0.138 |
| 2 | 2.28 | 0.237 | 2.39 | 0.199 | 2.46 | 0.208 |
| Average | \$1.85 | \$0.207 | \$1.94 | \$0.174 | \$1.99 | \$0.178 |

Table II gives the cost factors. The feed costs of pullets in a skim-milk pen, fed the same year as the hens in Experiments Nos. 1 and 2 are given to show that hens are about as expensive to feed as pullets, and because they lay fewer eggs, it costs more to produce one dozen eggs. It costs a little more to feed the check pens as hens than it did the skim-milk pens, due probably to the slight increase in egg production.

TABLE III.—Average Number of Eggs, per Hen and Pullet, per Pen, per Year

| Experiment No. | Skim-milk pen | | Check pen | |
|----------------|---------------|---------|-----------|---------|
| | Hens | Pullets | Hens | Pullets |
| 1 | 99.7 | 138.7 | 126.8 | 54.3 |
| 2 | 119.6 | 135.9 | 150.0 | 61.4 |
| Average | 109.6 | 137.3 | 138.4 | 57.8 |

Table III shows the real point of the hen test, the egg production. As pullets the check pens layed from 84 to 74 less eggs per bird than the skim-milk pen. The difference between one year and the next is very small. The skim-milk birds as hens laid 39 to 14 less eggs than they did as pullets. This is normal and to be expected. A production of 137 eggs is a good pullet average and 109 eggs is a good lay for a hen.

The check pens did very poorly as pullets but when given an opportunity to drink milk, they increased their own production 72 to 89 eggs and outlayed the pen that had been fed skim-milk for two years. In one case the check pen birds laid more eggs as hens than any other pen did as pullets.

This indicates rather conclusively that the lack of skim-milk retards the egg production and that the ability to produce eggs may be present in a hen yet not manifest itself, due to improper feeding.

TABLE IV.—Average Per Cent. Egg Production per Month, per Hen and Pullet

| Month | Skim-milk pen | | | | Check pen | | | |
|-----------|------------------|---------|------------------|---------|------------------|---------|------------------|---------|
| | Experiment No. 1 | | Experiment No. 2 | | Experiment No. 1 | | Experiment No. 2 | |
| | Hens | Pullets | Hens | Pullets | Hens | Pullets | Hens | Pullets |
| November | | | 11.5 | 10.0 | | | 15.8 | 10.0 |
| December | 11.0 | 0.9 | 10.0 | 8.0 | 31.0 | 0.0 | 35.0 | 6.0 |
| January | 10.0 | 2.6 | 34.0 | 14.5 | 25.9 | 0.0 | 38.5 | 8.7 |
| February | 20.0 | 18.0 | 39.0 | 25.6 | 38.0 | 13.0 | 59.0 | 22.0 |
| March | 50.0 | 61.0 | 55.8 | 58.0 | 58.0 | 23.0 | 59.6 | 29.0 |
| April | 63.0 | 70.0 | 49.0 | 68.9 | 63.0 | 42.0 | 53.0 | 38.9 |
| May | 46.0 | 60.0 | 43.6 | 62.0 | 43.0 | 21.0 | 54.0 | 41.0 |
| June | 39.0 | 58.0 | 38.7 | 62.6 | 38.0 | 30.0 | 44.0 | 29.0 |
| July | 31.0 | 50.0 | 23.0 | 40.0 | 31.0 | 10.0 | 36.6 | 4.6 |
| August | 17.0 | 45.0 | 31.0 | 41.0 | 25.0 | 11.0 | 30.5 | 0.1 |
| September | 24.0 | 38.0 | 40.0 | 37.0 | 30.0 | 6.8 | 41.5 | 3.5 |
| October | 8.4 | 39.0 | 15.6 | 20.0 | 14.0 | 8.4 | 22.7 | 1.3 |
| November | 4.0 | 17.0 | 8.0 | 36.0 | 8.0 | 7.7 | 15.0 | 0.0 |

Most poultrymen measure egg production in percentage, and Table IV gives the per cent. egg production from the two flocks as hens and pullets. A careful analysis and study of the figures show some rather unexpected and unusual things. In no case did the pullets do very well as fall and winter egg producers, and in Experiment No. 1 where the birds were late hatched, the production was very poor. In no pen did the pullets equal the hens in fall and winter production. This is not to be expected. In Experiment No. 2, the pullets in both the skim-milk and check pens laid about the same until January, when any stored up protein food in the body was exhausted, and the check pen birds fell off in production. The November record at the bottom of the columns for Experiment No. 2 is hardly fair to consider because it is based on the first three days of the month only.

The pullets in the check pens began molting in July which caused a big drop in production. These birds were well finished as to feather in November and December and responded quickly to the addition of milk in the ration, by giving a very good winter egg production. This production was in reality better than the milk-fed pullet lay. Most of the pullets in the milk-fed pens began molting in October and November, and they showed poor egg laying in November and December and part of January. This is normally to be expected of hens, but it was rather unusual for the winter egg production to be better with the hens than it was with the same birds as pullets.

Early molters usually take longer to molt than late molters and so little is gained by keeping the early molters if winter egg production is desired from hens. Early molting not only indicates poor laying but marks the innately poor producer. In this experiment with the check pen, early molting accompanied poor laying but did not necessarily indicate poor laying ability. Early molters that were poorly and improperly fed might be wisely chosen for winter egg production as hens, if proper feed is given, beginning in the fall.

TABLE V.—Average Income and Profit Over Feed, per Hen, per Year

| Experiment No. | Skim-milk pen | | Check pen | | Skim-milk pen | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | Hens | | Hens | | Pullets | |
| | Average income | Average profit | Average income | Average profit | Average income | Average profit |
| 1 | \$2.13 | \$0.64 | \$2.95 | \$1.38 | \$2.99 | \$1.41 |
| 2 | 3.79 | 1.42 | 4.92 | 2.42 | 4.57 | 2.05 |
| Average | \$2.96 | \$1.03 | \$3.93 | \$1.90 | \$3.78 | \$1.73 |

Table V shows the income and profit over feed of the pens under consideration. In these days, such figures are misleading unless used largely for comparison. Income and profit are shown for pullets fed the same ration the same years the hens were fed, and are of value, in that they show that the check pen birds as hens did as well or better than pullets at the same time on the same ration. The check pen birds produced \$0.97 more income and \$1.03 more profit than the milk-fed pen. They became efficient producers when given a chance.

TABLE VI.—Per Cent. Fertility and Hatching Power of Eggs—
Hens and Pullets

Fertility of Eggs

| Experiment No. | Skim-milk pen | | Check pen | |
|----------------|---------------|---------|-----------|---------|
| | Hens | Pullets | Hens | Pullets |
| 1 | 88.0 | 74.0 | 80.0 | 81.0 |
| 2 | 92.2 | 76.0 | 96.4 | 82.9 |
| Average | 90.1 | 75 | 88.2 | 87.9 |

Hatching Power of Eggs

| Experiment No. | Skim-milk pen | | Check pen | |
|----------------|---------------|---------|-----------|---------|
| | Hens | Pullets | Hens | Pullets |
| 1 | 57.2 | 52.0 | 45.7 | 56.0 |
| 2 | 56.8 | 57.4 | 61.8 | 52.6 |
| Average | 57.0 | 54.7 | 53.7 | 54.3 |

In Table VI is found data on fertility and hatching power. In fertility the hens averaged better than the pullets to a marked degree, but the differences in "hatchability" were less marked. Differences between check and milk pens among the hens were slight.

PURDUE UNIVERSITY

Agricultural Experiment Station

BULLETIN No. 219
SEPTEMBER, 1918

SWINE FEEDING

FEEDING TRIALS WITH CORN BY-PRODUCTS, PALMO MIDS, AND COMMERCIAL MIXED HOG FEEDS, 1917-1918

- PART I. Corn Feed Meals vs. Ground Corn
 - PART II. Hominy Feed vs. Ground Corn
 - PART III. Corn Germ Meals
 - PART IV. Palmo Midds
 - PART V. Commercial Mixed Hog Feeds
-

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FEEDING TRIALS WITH CORN BY-PRODUCTS, PALMO MIDDS, AND COMMERCIAL MIXED HOG FEEDS, 1917-1918

J. H. SKINNER

C. G. STARR

SUMMARY

PART I

CORN FEED MEALS vs. GROUND CORN

The corn feed meals were considered as substitutes for corn.

The corn feed meals, for the best results, should be supplemented with some protein feeds such as tankage, oil meal, skim-milk, soybeans, or other protein concentrates.

The corn feed meals produced as rapid gains on hogs as ground corn.

The corn feed meals produced pork as economically as ground corn.

The corn feed meals may satisfactorily replace corn where obtainable at prices equal to those for matured sound corn.

PART II

HOMINY FEED vs. GROUND CORN

Hominy feed manufactured at the present time is not as efficient in fattening hogs as the hominy feed formerly produced.

Hominy feed made somewhat smaller daily gains than ground corn.

Hominy feed produced pork almost as economically as well matured ground corn.

Hominy feed may be used in replacing corn in hog fattening rations where obtainable and at prices on equality with sound corn.

PART III

CORN GERM MEALS

Starch corn germ meal, when fed dry, was not palatable to fattening hogs.

Hominy corn germ meal was much more efficient when fed alone and dry, than starch corn germ meal.

Hominy corn germ meal, when fed dry, is not as palatable to hogs as a ration of ground corn and tankage.

A ration of ground corn and tankage was much more efficient than either of the corn germ meals, in rapidity of gains, consumption of feeds and economy of production.

The addition of corn to the corn germ meals increased the consumption of feed, produced more rapid gains, and resulted in greater economy than corn germ meal fed alone.

The addition of tankage to *starch* corn germ meal is not advisable nor profitable.

As total substitutes for tankage in supplementing ground corn in hog fattening rations, the corn germ meals were not satisfactory.

As a partial substitute for tankage, *starch* corn germ meal was not as efficient in producing gains or economy of production as hominy corn germ meal.

Hominy corn germ meal was apparently satisfactory as a partial substitute for tankage.

Hogs consumed *starch* corn germ meal mixed with tankage, when fed dry, much better than when fed twice daily as a slop.

In all rations thus far tested, *starch* corn germ meal is apparently not palatable to hogs.

Hominy corn germ meal was apparently much more palatable than starch corn germ meal.

PART IV

PALMO MIDS

Hogs fed Palmo Midds in addition to the basal ration of ground corn and tankage, gained 15.7 per cent. more rapidly than hogs fed standard wheat middlings in addition to the basal ration.

The hogs fed the ground corn and tankage, however, gained 4.9 per cent. more rapidly than the hogs fed Palmo Midds.

The hogs fed the ground corn and tankage and Palmo Midds consumed more feed than those receiving standard wheat middlings in addition to the ground corn and tankage or those receiving the basal ration only.

The hogs fed Palmo Midds in addition to the ground corn and tankage required 9.5 per cent. more feed per 100 pounds of gain than the hogs fed standard middlings in addition to the basal ration and 13.2 per cent. more feed than the hogs fed ground corn and tankage alone.

PART V

COMMERCIAL MIXED HOG FEEDS

The two commercial mixed hog feeds did not produce pork as rapidly or as economically as the ration consisting of ground corn and tankage.

INTRODUCTION

In previous years, corn has been the basis of rations used for the production of pork. Corn has usually been available on the average Corn Belt farm at lower prices than any substitute. However, recent changes in general economic conditions and demands made necessary by the war, have created a different situation.

The scarcity and exceedingly high prices for corn during the spring and summer of 1917 caused a very great demand for corn substitutes. The very poor quality and feeding value of the 1917 corn crop in many counties created additional demands for something to feed hogs other than corn. It may be said that suddenly the hog growers were very much

more interested in corn substitutes than supplemental feeds to combine with corn.

Unfortunately at the time of this sudden demand, little reliable information concerning the relative feeding value of many corn substitutes for hogs was obtainable. The most of the experimental feeding in the Corn Belt had formerly been along lines of vital interest to the pork producers. These investigations were with supplemental feeds, different methods of feeding, the use of forage crops, etc.

The increased use of corn for the manufacture of human food stuffs has, in recent years, greatly increased the tonnage of corn by-products, thus causing the manufacturers of corn flour, hominy, corn meal, starch, syrups, corn oil, etc., to seek markets for their by-products.

The embargo on exportation of corn germ cake or meal to European countries threw upon the American market great quantities of corn germ meal. Previous to 1917, comparatively little corn germ meal had been used on American farms. The need for a market caused the manufacturers to push the sales of this by-product very vigorously. Although little was known of the feeding value of corn germ meal, either by the salesmen or consumers, many extravagant claims were made for it.

OBJECT

It may be stated that this bulletin is a report of progress in the study of the relative feeding value and place of the different corn by-products, Palmo Midds, and commercial mixed hog feeds in pork production. The data and conclusions presented are not final, since additional work with these feeds is contemplated.

The objects in view were to determine, if possible, the best methods of feeding these by-products and to determine the peculiarities of the feeds when fed to hogs. The second trial was a continuation of the more promising rations used in the first trial and a check upon others before making definite conclusions. The third trial was a further continuation of the investigation to determine the place and value of the corn germ meals, and an effort to determine the relative feeding value of Palmo Midds and standard wheat middlings and the relative feeding value of two common commercial hog feeds as compared with a standard ration of ground corn and tankage.

In this work the State Chemist's Department has cooperated in every way possible with the Animal Husbandry Department in planning the trials and in analyzing all the feeds used.

PLAN

In the first trial, the following rations were fed in self-feeders, the hogs being allowed to have free choice of all feeds offered.

- Lot 1. Corn feed meal No. 1 plus tankage
- Lot 2. Corn feed meal No. 2 plus tankage
- Lot 3. Corn feed meal No. 3 plus tankage
- Lot 4. Corn germ meal (starch by-product)
- Lot 5. Corn germ meal (starch by-product) plus ground corn
- Lot 6. Corn germ meal (starch by-product) plus tankage
- Lot 7. Corn germ meal (hominy by-product)
- Lot 8. Hominy feed plus tankage
- ✓ Lot 9. Ground corn plus tankage

In the second trial, the following rations were again fed in self-feeders to the hogs.

- Lot 1. A mixture of one part corn germ meal and one part tankage plus ground corn
- Lot 2. Corn feed meal No. 2 plus tankage
- Lot 3. Corn feed meal No. 3 plus tankage
- Lot 4. Corn germ meal (starch by-product)
- Lot 5. Mixture of one part corn germ meal (starch by-product) and one part ground corn
- Lot 6. Mixture of one part corn germ meal (starch by-product) and three parts ground corn
- Lot 7. Corn germ meal (hominy by-product)
- Lot 8. Hominy meal plus tankage
- ✓ Lot 9. Ground corn plus tankage
- Lot 10. Mixture of one part ground corn and three parts corn germ meal (hominy by-product)

In the third trial the hogs were fed the following rations in self-feeders, except in Lot 9, where the mixture of corn germ meal and tankage was fed in the form of a slop twice daily. The hogs in the lots receiving the mixture had free choice of the mixture and ground corn, and of the tankage and ground corn in Lot 6.

- Lot 1. Mixture of one part corn germ meal (starch by-product) and one part tankage plus ground corn
- Lot 2. Mixture of three parts corn germ meal (starch by-product) and one part tankage plus ground corn
- Lot 3. Mixture of three parts corn germ meal (hominy by-product) and one part tankage plus ground corn
- Lot 4. Mixture of three parts standard wheat middlings and one part tankage plus ground corn
- Lot 5. Mixture of three parts Palmo Midds and one part tankage plus ground corn
- ✓ Lot 6. Tankage plus ground corn
- Lot 7. Commercial mixed hog feed No. 1
- Lot 8. Commercial mixed hog feed No. 2
- Lot 9. Mixture of three parts corn germ meal (starch by-product) and one part tankage slop plus ground corn

YARDS, SHELTER AND WATER

The hogs in the first trial were quartered in the lots used in winter for feeding cattle and lambs. These are dry lots with sheds over practically one-half of them. The outside portion of the cattle pens is floored with concrete while the floor of the shed portion is of earth. The floors of the sheep feeding pens, both inside and out, are of earth. In these pens, the hogs kept comparatively cool during the hottest days of the feeding period. Water from the public water system was supplied twice daily in troughs which were kept clean. The hogs had access to the different feeds in large self-feeders.

The hogs in the second trial were fed in the experimental hog feeding lots which are 26 feet by 70 feet. Each lot is provided with a well-built house, sufficiently large to properly house from 7 to 10 hogs. The lots were free from grass and other vegetation. The hogs in this trial had free access to large self-feeders on concrete feeding floors in each lot and also to small self-feeders placed inside the houses. Water was supplied as in the first trial.

The hogs in the third trial were housed throughout the experiment in pens in the hyper-immune barn of the serum plant of the Veterinary Department. The pens have concrete floors, steel partitions and are 12 to 16 feet wide and 16 feet in length. The pens were regularly cleaned once daily. The feeds were offered in small self-feeders placed in each pen. A concrete watering trough furnished water at all times.

WEIGHTS

Each animal was weighed for 3 consecutive days at the beginning and end of the trial, the average of the 3 days' weights being taken as the initial and final weights. Every 30 days during the progress of the trial, the animals were weighed individually. Every 10 days during the trial, each lot was weighed as a group. All weights were taken at 9:00 a. m., without restrictions on feed or water.

The hogs were identified by numbered ear tags.

In all lots where the rations were fed in self-feeders, the feeds were weighed as placed in the feeders. Every 30 days, the feeders were emptied of contents, the remainders were weighed and the amount deducted from the total amount placed in the feeders during the month, in order to determine the amount consumed. In case of Lot 9 in the third trial, the mixture fed in the form of slop was weighed at each feeding, while the ground corn was fed in self-feeders the same as in the other lots.

METHOD OF FEEDING

The self-feeders used in the trials were sufficiently large to accommodate the hogs at all times. The feeders were inspected at least twice daily and the feeds and feeding slides so regulated that ample feed was before the hogs at all times. Care was taken that as little feed as possible was wasted but no attempt was made to so limit the hogs that they would be forced through hunger to consume all feed that might be rooted out of the feeder. It was found that in all cases where the rations were

palatable, the hogs wasted very little feed. In some cases, where the ration appeared to be distasteful, the hogs rooted out some of the feed. In such cases, the feeders were promptly adjusted to allow less feed in the feeding boxes. It was impossible to keep exact record of the feed so wasted. The feeders were refilled from time to time so as to keep feed constantly before the hogs. Care was taken that no feed was moistened by rain and that no feed was allowed to mold or spoil in the feeders.

The slop fed to Lot 9 in the third trial was fed at 6:00 a. m. and 4:30 p. m., in a wooden trough, which furnished ample room for all of the pigs in the lot to eat at the same time. The feed was mixed with water to make a slop that would pour readily from a bucket.

In the first and second trials, the water was given early in the morning and late in the afternoon. In the third trial, the water was given early in the morning in quantities sufficient to last until the next morning in clean concrete troughs.

DESCRIPTION OF HOGS

The hogs used in the first trial were purchased in Warren County, Indiana, and came from two farms. The majority were well-bred grade Duroc-Jersey pigs farrowed in the spring of 1917; the others were well-bred grade Poland Chinas of practically the same age. Both lots were in thrifty condition. Previous to purchase, the hogs had been on pasture, with a light grain ration. Upon arrival at the experimental lots, the hogs were vaccinated and fed a light ration of corn and middlings. Previous to placing on full ration, the hogs were given santonin and calomel for removal of intestinal worms. The hogs were accustomed to a full feed of shelled corn, middlings and tankage previous to starting on experimental feed.

The hogs used in the second trial were also purchased in Warren County, from a half dozen farms and were of mixed breeding; all, however, were thrifty, well grown shoats of the 1917 spring farrow. This lot of hogs was treated similarly to those in the first trial previous to being placed on experimental feed.

The hogs in the third trial were purchased from the Purdue Veterinary Department and originally they were parts of two car loads of hogs bought in southern Indiana. The Veterinary Department used these hogs for the purpose of testing the potency of anti-hog cholera serum. When purchased by the Animal Husbandry Department, the hogs had fully recovered from the effects of vaccination and had been on full feed of corn and tankage for several days. In quality and thrift, these hogs were fair but not as good as the hogs used in the first and second trials.

The lots of hogs in all the trials were selected with the view of obtaining as much uniformity as possible in regard to age, weight, sex, breeding and thrift.

FEEDS

The different by-product feeds used in these trials, are doubtless not familiar to the great majority of Corn Belt pork producers. Much confusion and lack of understanding have been brought about by the careless and indiscriminate use of the correct names of these feeds. Sometimes the same name is applied to two different corn by-products which

are quite different in composition and feeding value; again, two or more names have been used for the same feed, but sold by different firms. The farmer who is not familiar with commercial by-products should understand clearly that there is a difference in the different by-products, not only in name but in composition and feeding value. The Indiana Feeding Stuffs Control law requires that all commercial feeds offered for sale in the State must bear tags giving the registered name, the guaranteed analysis and ingredients of the feed. An inspection of these tags will give any prospective buyer valuable information. It has been thought best, for a clearer understanding, to give a somewhat concise statement as to the feeds used in the trials reported.

CORN FEED MEAL.—"Corn Feed Meal is the sifting obtained in the manufacture of cracked corn and table meal made from the whole grain."¹

A more recent definition for corn feed meal is "Corn Feed Meal is a by-product obtained in the manufacture of cracked corn, with or without aspiration products added to the siftings, and is a by-product obtained in the manufacture of table meal from the whole grain by the non-degerminating process."

Under recent ruling of the Federal Food Administration, corn feed meal No. 1 would be classified as yellow hominy feed from which part of the oil had been extracted; corn feed meal No. 2 would also be classed as hominy feed.

In these trials, three different corn feed meals have been used. Corn feed meal No. 1 is a by-product manufactured as follows: in the preparation of corn grain for grinding, the germs were removed mechanically, some oil pressed from them and the residue returned to the siftings; this mixture is ground and sold as corn feed meal. The corn feed meal No. 2 was manufactured in the same manner, except that no oil was extracted from the germs. Corn feed meal No. 3 was the by-product or siftings resulting from the manufacture of cracked corn.

The chemical analyses of these three corn feed meals are given in Table I.

HOMINY FEED OR MEAL.—"Hominy Feed, Hominy Meal, or Hominy Chop, is a kiln-dried mixture of the mill run bran coating, the mill run germ, with or without a partial extraction of the oil and a part of the starchy portion of the white corn kernel obtained in the manufacture of hominy, hominy grits and corn meal by the degerminating process."¹ This feed is more familiar to Indiana hog producers than other corn by-products, as it has been on the market for some years and has been successfully used by feeders. The definition of this feed has been changed from time to time in the past.

Urgent demand and the shortage of fats and oils for food purposes have greatly increased the prices of these products and have caused the manufacturers of corn products to remove all the fats and oils possible from the corn. At the present time hominy mills are making hominy feeds of three different types. In one type, the mill-run corn germs, mill-run corn bran and soft meal are mixed together, ground and sold as

¹ Definitions of feeding stuffs adopted by the Association of Feed Control Officials of the United States, 1915

The definition of this feed is changing from time to time as the processes of manufacture change.

hominy feed. In a second type, the corn germs are removed and the oil partially extracted, while the residue is returned to the other materials, then ground and sold as hominy feed. In the third type, corn germs are removed so far as possible. The small amount of corn germ remaining, the corn bran and the soft meal are then ground and sold as hominy feed. In general, this class of hominy feed usually contains more starch and less fat and protein than the other two.

The hominy feed used in the work herein reported was of the third class in which most of the germ has been removed.

CORN GERM MEAL.—"Corn germ meal is a product in the manufacture of starch, glucose and other corn products and is the germ layer from which a part of the corn oil has been extracted."¹ This is very frequently termed hominy hearts by salesmen. It should be clearly distinguished from corn feed meals and hominy feed since it is an entirely different by-product. Considerable confusion has resulted from the use of different names such as *corn oil cake*, *corn oil cake meal*, *hominy hearts*, *corn germ meal*, and *corn oil meal*. All of these terms are for exactly the same feed. The official name is *corn germ meal*.

Many feeders last year were somewhat puzzled by the difference found in corn germ meals. This was due largely to the fact that there are two general classes of corn germ meals, the by-products of two different manufacturing methods. In the manufacture of starch, glucose, and syrups, the corn kernels are first soaked for some time in a very weak sulphurous acid solution. The germs are then easily separated by agitators. The germs rise to the surface and are readily removed. These germs are then repeatedly washed, pressed to extract corn oil, dried and ground. The resulting substance is sold as corn germ meal.

In the manufacture of corn flour, corn meal and hominy grits, the corn germs are removed from the kernels by a purely mechanical process. These germs are pressed for the oil content either at the factory at which they are removed or at a separate oil factory. As a general rule, more or less heat is used in the process of oil extraction in addition to pressure. The residue, after the oil is extracted, is ground and sold as corn germ meal, or may be used in the manufacture of hominy feed.

In this bulletin for purposes of distinction, the corn germ meal used as a representative of the class of corn germ meals resulting as by-products from the manufacture of starch, glucose and syrups, is termed *starch* corn germ meal. The corn germ meal used as a representative of the second class is termed *hominy* corn germ meal. These definitions and distinctions have been kept clearly in mind in the discussion of the results. The reader should also bear this fact in mind. The analyses of the corn germ meals used in these trials are given in Table I.

PALMO MIDDs.—In the process of preparing tin plate for the market, the excess of palm oil on the plate is removed by scouring with a mixture of wheat middlings and ground wheat screenings. After the maximum absorption of oil, the middlings and ground wheat screenings are so processed that no deleterious material should remain. This resulting by-product of the tin plate mills is sold under the name of "Palmo Midds," which should not be confused with Palmo Mixed Feed. The Palmo Midds used in these feeding trials was obtained directly from a tin plate

mill. At the same time, a corresponding quantity of wheat middlings and screenings was secured from the mill, which were the same as those used in the preparation of Palmo Midds. The chemical analyses of the wheat middlings and Palmo Midds as determined by the State Chemist are given in Table I.

COMMERCIAL MIXED HOG FEEDS

For the purpose of obtaining authoritative information concerning the relative feeding value of some commercial mixed hog feeds, two rather popular hog feeds were used. Both of these feeds were purchased on the open market. For purposes of identification in this bulletin, these feeds are called commercial mixed hog feed No. 1 and commercial mixed hog feed No. 2. The former was labeled with official tags, giving the manufacturer's guaranteed analysis showing not less than 4.0 per cent. crude fat, 23 per cent. crude protein and not more than 12 per cent. crude fibre, and stating that the ingredients consisted of wheat middlings, barley flour, flour middlings, Red dog flour, linseed oil meal, alfalfa meal and tankage. This feed was received in good condition and was stored in a dry place.

The feed herein called commercial mixed hog feed No. 2 was bought with the guaranteed tag analysis of not less than 4.0 per cent. crude fat, 18 per cent. crude protein and not more than 14 per cent. crude fibre. The manufacturer guaranteed it to be compounded from alfalfa meal, corn feed meal, corn germ meal, corn distillers' dried grains and solubles, linseed oil meal, blood flour, palm kernel meals, calcium carbonate, salt and molasses. It was received in good condition and stored in a dry place.

The chemical analyses of the different feeds used during the trials appear in Table I. All of these analyses were made in the Department of the State Chemist.

TABLE I.—Composition of Feeds

| Feed | Moisture per cent. | Crude fat per cent. | Crude protein per cent. | Crude fibre per cent. | Crude ash per cent. | Nitrogen free extract per cent. |
|--|-----------------------|---------------------------|-------------------------------|-----------------------------|---------------------------|--|
| Corn feed meal No. 1----- | 10.0 | 6.2 | 11.5 | 4.2 | 2.8 | 65.3 |
| Corn feed meal No. 2----- | 9.3 | 6.4 | 10.9 | 4.6 | 2.4 | 66.4 |
| Corn feed meal No. 3----- | 10.4 | 3.4 | 8.6 | 2.8 | 1.9 | 72.9 |
| Hominy feed ----- | 9.1 | 7.6 | 11.2 | 5.0 | 2.7 | 64.4 |
| Starch corn germ meal ----- | 9.3 | 10.1 | 24.6 | 8.6 | 2.1 | 45.3 |
| Hominy corn germ meal ----- | 4.6 | 6.3 | 18.5 | 7.1 | 7.3 | 56.2 |
| Ground corn ----- | 11.5 | 4.1 | 9.4 | 2.0 | 1.5 | 71.5 |
| Palmo Midds ----- | 5.4 | 10.1 | 16.2 | 7.4 | 5.6 | 55.3 |
| Wheat middlings ----- | 8.5 | 4.9 | 16.5 | 8.3 | 5.4 | 56.4 |
| Commercial mixed hog feed No. 1 ----- | 8.4 | 6.0 | 25.0 | 9.0 | 7.4 | 44.2 |
| Commercial mixed hog feed No. 2 ----- | 11.8 | 4.4 | 19.7 | 4.4 | 2.0 | 57.7 |

The corn used in the first trial was of the 1916 crop and its analysis is given in Table I. In the second trial, old corn similar to that of the first trial, was fed for approximately two-thirds of the 65-day feeding

period. After this time, corn of the 1917 crop was used. The corn used in the third trial was of the 1917 crop. All of the corn from the 1917 crop was but fair in quality and rather high in moisture. No chemical analysis was made of this corn, but moisture determinations of corn similar to that of the 1917 crop, used in the second trial, gave moisture contents varying from 25 per cent. to 30 per cent. The moisture content of the corn used in the third trial was, as a rule, 20 per cent. or slightly less.

High grade 60 per cent. protein tankage was used throughout the trials.

PRICES OF FEEDS

During the time of these three feeding trials, from August, 1917 to June, 1918, prices of all feeds were very erratic. At one time, ground corn was purchased at a price equivalent to \$2.20 per bushel and at another time it was purchased at a price equivalent to \$1.15 per bushel. The cost of tankage varied from \$80.00 to \$105.00 per ton. The by-products were purchased at varying prices, determined largely by current prices for corn, the supply available and the freight charges. The two commercial feeds purchased varied considerably in price.

All financial conclusions have been omitted in reporting these trials because of wide variations in feed prices. Unwarranted applications are frequently made where financial conclusions are given in presenting the results of feeding trials when prices of different feeds vary in different localities.

The important factors in determining the value of a feeding stuff in such trials as herein reported are the daily feed consumption, the feed required per 100 pounds of gain, the rate of gains and the finish of the animals, and if these be clearly presented the reader may readily apply the results to his local conditions and prices.

PART I

CORN FEED MEALS vs. GROUND CORN

In the first feeding trial, from August 10 to October 9, 1917, 10 pigs were placed in each lot. After receiving the preliminary treatment already described, these pigs were given free access to the different feeds in self-feeders. In all of the lots, the pigs ate the corn feed meal readily. In the case of corn feed meal No. 3, a portion of it was not finely ground, allowing the pigs an opportunity to root some cob and chaff and larger pieces of husks of corn kernels out of the feeding boxes. This waste was very small when weighed. When this corn feed meal was finely ground, the pigs ate without waste. Some difficulty was observed in the feeding of corn feed meal No. 2, due to the somewhat flaky nature of the feed. The physical condition of this corn feed meal caused the self-feeders to clog more easily than with the other corn feed meals or ground corn. Care was taken, however, that the pigs in this lot had feed at all times.

Table II gives the result of the first trial.

TABLE II.—Corn Feed Meals vs. Ground Corn—August 10 to October 9, 1917—60 Days—10 Hogs per Lot

| Ration | Lot 1 | Lot 2 | Lot 3 | Lot 9 |
|--------------------------|----------------------------------|----------------------------------|----------------------------------|-------------------------|
| | Corn feed meal No. 1 and tankage | Corn feed meal No. 2 and tankage | Corn feed meal No. 3 and tankage | Ground corn and tankage |
| Average initial weight | 99.6 lbs. | 99.7 lbs. | 99.2 lbs. | 99.3 lbs. |
| Average final weight | 212.5 " | 215.7 " | 212.7 " | 207.3 " |
| Average daily gain | 1.88 " | 1.93 " | 1.89 " | 1.80 " |
| Average daily feed | | | | |
| corn feed meal or corn | 7.63 " | 7.22 " | 7.63 " | 7.11 " |
| tankage | 0.35 " | 0.535 " | 0.62 " | 0.41 " |
| Feed per 100 pounds gain | | | | |
| corn feed meal or corn | 405.4 " | 373.5 " | 403.5 " | 395.1 " |
| tankage | 18.5 " | 27.7 " | 32.6 " | 22.7 " |
| Total feed | 423.9 " | 401.2 " | 436.1 " | 417.8 " |

It will be noted that the average daily gains in each lot were very similar. There was evidently no marked difference in any of the corn feed meals or ground corn shown by the rate of gain in the hogs.

The hogs in Lot 1 consumed an average daily feed of 7.98 pounds of corn feed meal and tankage. In Lot 2, the average daily feed consumption was 7.755 pounds, in Lot 3, 8.25 pounds and in Lot 9, 7.52 pounds. Considering the size of the hogs, all lots consumed large quantities of feed, indicating that all rations were palatable.

When the economy of production is considered, it will be noted that there are no striking differences in favor of any particular corn feed meal or ground corn. Such differences as do appear may be easily due to the individuality of the hogs in the different lots. It would perhaps be well to state that there were no unthrifty hogs in any of the lots.

It will be noted, however, that apparently the corn feed meal possessing the higher percentage of protein required lesser amounts of tankage.

The second trial was conducted from November 6, 1917 to January 10, 1918, a period of 65 days. Because of the necessity for allowing ample room for shelter, seven hogs only were placed in each lot. It was found impossible to obtain corn feed meal No. 1 for this trial. Owing to the supply of old corn being exhausted and the impossibility of grinding the new corn crop during the feeding period, corn feed meal No. 3 was obtained in quantity only sufficient to feed during the first 30 days of the feeding period. Corn feed meal No. 2 was fed throughout the period.

The hogs were given preliminary treatment similar to that used in the first trials and were again given their feeds in self-feeders. In addition to the large feeders in the open lots, small self-feeders were placed inside of the shelters so the hogs would have an opportunity to eat, no matter how bad the weather. It was observed that during the 65 days, which included many stormy, severe days, that the hogs ate practically altogether at the large feeders in the open.

Table III gives the results of the second trial.

TABLE III.—Corn Feed Meals vs. Ground Corn—November 6, 1917 to January 10, 1918—65 Days—Seven Hogs per Lot

| Ration | Lot 2 | Lot 3 ¹ | Lot 9 |
|--------------------------|--|--|----------------------------|
| | Corn feed meal No. 2 and tankage | Corn feed meal No. 3 and tankage | Ground corn and tankage |
| Average initial weight | 129.4 lbs. | 130.4 lbs. | 129.1 lbs. |
| Average final weight | 250.4 " | 196.4 " | 251.7 " |
| Average daily gain | 1.86 " | 2.20 " | 1.89 " |
| Average daily feed | | | |
| corn feed meal or corn | 8.78 " | 9.99 " | 9.09 " |
| tankage | 0.41 " | 0.70 " | 0.50 " |
| Feed per 100 pounds gain | | | |
| corn feed meal or corn | 471.5 " | 454.0 " | 482.0 " |
| tankage | 22.0 " | 31.7 " | 26.8 " |
| Total feed | 493.5 " | 485.7 " | 508.8 " |

¹ This lot fed 30 days only

It will be observed that the daily gains in Lots 2 and 9 are very similar. The average daily gain in Lot 3 was considerably greater than either, but it must be remembered that this is for 30 days only, while with the other two lots, the gain is the average for 65 days.

The daily feed consumption was larger in all lots than in the first trial. A part of this increased consumption may be attributed to the larger size of the hogs in the second trial and probably the balance to the increased demands for food occasioned by the extremely cold weather.

The amounts of feeds required per hundred pounds of gain in all three lots are so nearly equal that no decided advantage can be given to either of the corn feed meals or ground corn.

In summing up the results, it may be stated that upon the basis of two trials, the corn feed meals appear to be as palatable as ground corn. The hogs fed corn feed meal and tankage made as rapid gains as when fed ground corn and tankage. Pork was produced at as low a feed cost with corn feed meals and tankage as with sound mature ground corn and tankage.

PART II

HOMINY FEED vs. GROUND CORN

From 1908 to 1911, this Station conducted seven feeding trials with hogs, in which hominy feed was fed in comparison with corn meal, three trials in which the hominy meal was supplemented with wheat shorts, and four trials where the hominy feed and corn meal were supplemented with tankage. Basing the statements upon these trials, in Bulletin No. 158, "Hominy Feed for Fattening Hogs," the authors say, "Hominy feed produces more rapid gains on hogs than does corn meal. Hominy feed produces gains on less grain than does corn meal." By taking the data in Bulletin No. 158 as a whole, it has been estimated that hominy feed has been approximately 15 per cent. more efficient in producing pork than corn meal.

In the beginning of the feeding trials reported in this bulletin, it was thought best to conduct additional trials since it was known that in recent years, the manufacture of hominy feed had been changed in some ways and that in many factories, corn oil was being extracted from the germs.

In the preliminary study, it was noted that the crude food nutrients of the 1917 hominy feed revealed by the analysis reported by the State Chemist were different from those of the hominy feed sold in 1908 to 1911. The following comparisons may be of interest:

TABLE IV.—Comparison of Crude Food Nutrients in Hominy Feeds, 1910-11 and 1917

| | Moisture per cent. | Crude fat per cent. | Crude protein per cent. | Crude fiber per cent. | Ash per cent. | Nitrogen free extract per cent. |
|---------|-----------------------|------------------------|----------------------------|--------------------------|------------------|---------------------------------------|
| 1910-11 | 9.0 | 8.2 | 10.4 | 3.8 | 2.5 | 66.1 |
| 1917 | 9.1 | 7.5 | 11.2 | 5.0 | 2.7 | 64.4 |

The analysis used for the hominy feed in 1910-11 is the average of 44 official samples reported by the State Chemist. The analysis of the 1917 hominy feed is that reported by the State Chemist for the hominy feed used in the trials reported in this bulletin.

It may be noted that apparently there is closer milling of the corn grain at this time, that oil has been removed, and in general the feed contains less carbohydrates, slightly more protein and more crude fiber.

In the first trial, 10 hogs were used in each lot. The hogs in one lot were allowed free choice of hominy feed and tankage and those in the other lot were allowed free choice of ground corn and tankage. Both lots apparently relished their feed and there was practically no waste.

In the second trial, seven hogs were placed in each lot. These hogs received treatment similar to those in the preceding trial although some extremely cold weather was experienced during this trial.

Table V shows the results of the two trials.

TABLE V.—Hominy Feed and Tankage vs. Ground Corn and Tankage

| Ration | Aug. 10-Oct. 9, 1917 60 days—10 hogs per lot | | Nov. 6, 1917-Jan. 10, 1918 65 days—7 hogs per lot | |
|--------------------------|---|----------------------------|--|----------------------------|
| | Hominy feed and tankage | Ground corn and tankage | Hominy feed and tankage | Ground corn and tankage |
| Average initial weight | 99.2 lbs. | 99.3 lbs. | 130.0 lbs. | 129.1 lbs. |
| Average final weight | 205.5 " | 207.3 " | 231.4 " | 251.7 " |
| Average daily gain | 1.77 " | 1.80 " | 1.56 " | 1.89 " |
| Average daily feed | | | | |
| hominy feed or corn | 7.19 " | 7.11 " | 7.61 " | 9.09 " |
| tankage | 0.41 " | 0.41 " | 0.47 " | 0.50 " |
| Feed per 100 pounds gain | | | | |
| hominy feed or corn | 405.8 " | 395.1 " | 488.0 " | 482.0 " |
| tankage | 22.9 " | 22.7 " | 30.0 " | 26.8 " |
| Total feed | 428.7 " | 417.8 " | 518.0 " | 508.8 " |

It will at once be noted that contrary to experimental feeding previously cited, the hogs receiving hominy feed and tankage did not make as rapid gains as hogs receiving ground corn and tankage. There is practically no difference in the first trial, but the hogs fed hominy feed in the second trial gained approximately 17 per cent. more slowly than the hogs fed ground corn.

There is no difference in the average daily consumption of feed in the first trial but in the second, the hogs fed corn consumed daily per hog 1.51 pounds more of ground corn and tankage than was consumed by the hogs fed hominy feed.

In the amount of feed required for each 100 pounds of gain, slight differences in favor of ground corn appear in both trials. These are, however, too slight to cause any decided difference for ground mature corn over hominy feed, in so far as economy of gains is concerned.

From the results of these trials, therefore, and in view of the changed methods of manufacture now in practice, it can no longer be said that hominy feed is approximately 15 per cent. more efficient in producing pork than corn meal. It is doubtful whether the hominy feed produced at the present time is any more efficient than corn.

PART III

CORN GERM MEALS

CORN GERM MEALS ALONE.—Since a considerable number of hog growers were endeavoring to feed the corn germ meals as the sole concentrate in the rations and some firms selling this product had been advising such method, it was deemed desirable to feed the corn germ meals alone in comparison with a standard ration of ground corn and tankage.



Fig. 1. Lot 4—fed Starch Corn Germ Meal alone 65 days, average daily gain per head, 0.03 pound.

In the first trial three lots of 10 hogs each were placed on rations of *starch* corn germ meal, *hominy* corn germ meal and ground corn and tankage. All feeds were fed dry in self-feeders. This work was repeated in the second trial with seven hogs in each lot.

Considerable difficulty was experienced in preventing waste of feed with the *starch* corn germ meal lots. The hogs were, apparently, searching for something more palatable and persisted in rooting feed out of the feeders. Less difficulty was found with the *hominy* corn germ meal in this respect. Practically no feed was wasted in the ground corn and tank-



Fig. 2. Lot 9—fed Corn and Tankage 65 days—average daily gain per head, 1.89 pounds

age lots. In the lots fed the *hominy* corn germ meal it was observed that the majority of the hogs were more laxative than in the other lots but no persistent diarrhoea was observed. In both trials, the hogs in all lots had access to salt and charcoal. Considerably larger quantities of the salt and charcoal were consumed by the hogs receiving the corn germ meals than by those receiving ground corn and tankage.

Table VI shows the results of the two trials.

TABLE VI.—Corn Germ Meals Alone vs. Ground Corn and Tankage

| Ration | First trial Aug. 10-Oct. 9, 1917—60 days 10 hogs per lot | | | Second trial Nov. 6, 1917-Jan. 10, 1918—65 days 7 hogs per lot | | |
|--------------------------|--|-----------------------------|-------------------------------|--|-----------------------------|-------------------------------|
| | Lot 4 | Lot 7 | Lot 9 | Lot 4 ¹ | Lot 7 | Lot 9 |
| | Starch corn germ meal | Hominy corn germ meal | Ground corn and tankage | Starch corn germ meal | Hominy corn germ meal | Ground corn and tankage |
| Average initial weight | 99.9 lbs. | 99.2 lbs. | 99.3 lbs. | 132.5 lbs. | 131.7 lbs. | 129.1 lbs. |
| Average final weight | 116.8 " | 189.2 " | 207.3 " | 134.3 " | 211.9 " | 251.7 " |
| Average daily gain | 0.28 " | 1.50 " | 1.80 " | 0.03 " | 1.23 " | 1.89 " |
| Average daily feed | | | | | | |
| corn germ meal | 2.49 " | 6.29 " | | 2.56 " | 6.54 " | |
| ground corn | | | 7.11 " | | | 9.09 " |
| tankage | | | 0.41 " | | | 0.50 " |
| Feed per 100 pounds gain | | | | | | |
| corn germ meal | 884.6 " | 419.2 " | | 9090.0 " | 530.0 " | |
| ground corn | | | 395.1 " | | | 482.0 " |
| tankage | | | 22.7 " | | | 26.8 " |
| Total feed | 884.6 " | 419.2 " | 417.8 " | 9090.0 " | 530.0 " | 508.8 " |

¹ Six pigs in this lot

There are apparently, striking differences in the feeding value of the starch and hominy corn germ meals when fed dry as the sole ration. The hogs would not consume sufficient *starch* corn germ meal to more than maintain their body weight. In Lot 4 in the second trial, the hogs became very weak and two hogs became helpless. One of these was removed early in the trial; hence the results are given for but six hogs. The other hog was removed towards the end of the trial. Both of these hogs began immediate recovery when corn and tankage were fed. While fair gains, at an economical rate of production, were secured with the hominy corn germ meal, neither the rate of gain, feed consumption nor economy of gain in the two lots receiving hominy corn germ meal were as good as in the two lots of hogs fed ground corn and tankage.

Upon the basis of these two trials, it may be stated:

1—that *starch* corn germ meal when fed dry and as a sole feed is not palatable to hogs;

2—that *hominy* corn germ meal is much more palatable as a sole feed, fed dry, than *starch* corn germ meal;

3—that neither of the corn germ meals when fed dry and as a sole feed is as efficient as ground corn and tankage in producing pork.

COMBINATION OF STARCH CORN GERM MEAL AND CORN.—As information concerning the use of corn germ meals and corn fed in combination was desired, one lot of 10 hogs was offered a free choice of *starch* corn germ meal and ground corn in comparison with a lot of 10 hogs offered ground corn and tankage in the first trial.

In the second trial, two lots of seven hogs each were offered varying mixtures of *starch* corn germ meal and ground corn in comparison with a lot of seven hogs receiving ground corn and tankage. Lot 5 was fed a mixture of equal parts by weight of *starch* corn germ meal and ground corn and the other lot received a mixture of one part *starch* corn germ meal and three parts ground corn.

Table VII gives the results of these trials.

TABLE VII.—Starch Corn Germ Meal and Ground Corn vs. Ground Corn and Tankage

| Ration | First trial Aug. 10-Oct. 9, 1917 60 days—10 hogs per lot | | Second trial Nov. 6, 1917-Jan 10, 1918 65 days—7 hogs per lot | | |
|--------------------------|--|----------------------------|---|--|----------------------------|
| | Lot 5 | Lot 9 | Lot 5 | Lot 6 | Lot 9 |
| | Starch corn germ meal and ground corn | Ground corn and tankage | Mixture 1 part starch corn germ meal, 1 part ground corn | Mixture 1 part starch corn germ meal, 3 parts ground corn | Ground corn and tankage |
| Average initial weight | 100.2 lbs. | 99.3 lbs. | 130.7 lbs. | 131.0 lbs. | 129.1 lbs. |
| Average final weight | 199.3 " | 207.3 " | 179.6 " | 218.6 " | 251.7 " |
| Average daily gain | 1.65 " | 1.80 " | 0.75 " | 1.35 " | 1.89 " |
| Average daily feed | | | | | |
| corn germ meal | 0.92 " | | 2.79 " | 1.99 " | |
| ground corn | 6.44 " | 7.11 " | 2.79 " | 5.95 " | 9.09 " |
| tankage | | 0.41 " | | | 0.50 " |
| Feed per 100 pounds gain | | | | | |
| corn germ meal | 55.6 " | | 371.0 " | 148.0 " | |
| ground corn | 390.1 " | 395.1 " | 371.0 " | 442.0 " | 482.0 " |
| tankage | | 22.7 " | | | 26.8 " |
| Total feed | 445.7 " | 417.8 " | 742.0 " | 590.0 " | 508.8 " |

It is evident that *starch* corn germ meal and ground corn were not as efficient as ground corn and tankage where the hogs were allowed free choice. The hogs in Lot 5 of the first trial showed a decided preference for the ground corn. This lot of hogs matured into fat chunks while the hogs in Lot 9 could have been profitably fed longer than the 60-day period. As a supplement for ground corn, in this trial, tankage was two and one-half times as efficient as *starch* corn germ meal. The hogs receiving ground corn and *starch* corn germ meal made approximately 8.0 per cent. slower gains. Approximately 28 pounds more of feed were required to make 100 pounds of pork in Lot 5 than in Lot 9.

In the second trial, it appears that the larger the proportion of ground corn in the mixture, the more rapid were the gains, the larger the feed consumption and the more economical the production of pork.

In these trials, there again appeared the evidence of lack of palatability of the *starch* corn germ meal. It is also apparent that the *starch* corn germ meal was not a satisfactory substitute for tankage in supplementing ground corn.

THE ADDITION OF GROUND CORN TO HOMINY CORN GERM MEAL.—It will be observed by referring to Table VI in the first trial, that Lot 7, receiving hominy corn germ meal made very economical gains but the gains were much slower than with Lot 9 fed the standard ration of ground corn and tankage. In the second trial, a lot of seven hogs was offered a mixture of three parts hominy corn germ meal and one part ground corn in comparison with Lot 7, receiving *hominy* corn germ meal alone and Lot 9, receiving ground corn and tankage.

Table VIII gives the results of this trial.

TABLE VIII.—Addition of Ground Corn to Hominy Corn Germ Meal
November 6, 1917 to January 10, 1918—65 Days—Seven Hogs per Lot

| Ration | Lot 7 | Lot 10 | Lot 9 |
|--|-----------------------------------|---|----------------------------|
| | Hominy corn germ meal alone | Mixture 3 parts hominy corn germ meal, 1 part ground corn | Ground corn and tankage |
| Average initial weight | 131.7 lbs. | 131.0 lbs. | 129.1 lbs. |
| Average final weight | 211.9 " | 227.4 " | 251.7 " |
| Average daily gain | 1.23 " | 1.48 " | 1.89 " |
| Average daily feed corn germ meal | 6.54 " | 6.88 " | |
| ground corn | | 2.29 " | 9.09 " |
| tankage | | | 0.50 " |
| Feed per 100 pounds gain corn germ meal | 530.0 " | 464.0 " | |
| ground corn | | 154.0 " | 482.0 " |
| tankage | | | 26.8 " |
| Total feed | 530.0 " | 618.0 " | 508.8 " |

The object of this trial was to endeavor to increase the rate of gain if possible by the addition of corn to hominy corn germ meal.

The addition of one part ground corn to the *hominy* corn germ meal in the second trial resulted in an additional increase of 0.25 pound daily above the daily gain of the hogs in the lot receiving *hominy* corn germ meal alone. The hogs in Lot 10 consumed 2.29 pounds of ground corn in addition to 6.88 pounds of *hominy* corn germ meal, daily per head. The hogs in Lot 7 did not consume even as much corn germ meal as those in Lot 10.

It will also be noted that the hogs in Lot 10 did not make as rapid gains, consume as much feed nor make as economical gains as the hogs in Lot 9, receiving ground corn and tankage.

Apparently the addition of ground corn made the mixture more palatable to the hogs than hominy corn germ meal alone.

STARCH CORN GERM MEAL AS A SUBSTITUTE FOR CORN.—To obtain information concerning whether corn germ meal could be substituted for corn in a ration of ground corn and tankage, a lot of 10 hogs was fed *starch* corn germ meal and tankage, allowing free choice of either feed. Considerable digestive disturbances were manifested by numerous cases of diarrhoea at the beginning of the trial. After a few weeks, however, there were very few cases of diarrhoea observed. During the entire feeding period, however, an excessive excretion of urine was observed. All of the hogs in the lot were affected. At the close of the trial, the hogs receiving this ration were apparently in excellent physical condition and had a very noticeable sleek, luxuriant growth of hair.

Table IX shows the results of the substitution of *starch* corn germ meal for corn.

TABLE IX.—Starch Corn Germ Meal as Substitute for Corn—August 10-October 9, 1917—60 Days—10 Hogs per Lot

| Ration | Lot 6 | Lot 9 |
|--------------------------|-----------------------------------|-------------------------|
| | Starch corn germ meal and tankage | Ground corn and tankage |
| Average initial weight | 99.7 lbs. | 99.3 lbs. |
| Average final weight | 140.2 " | 207.3 " |
| Average daily gain | 0.675 " | 1.80 " |
| Average daily feed | | |
| corn germ meal | 2.21 " | 7.11 " |
| ground corn | | 0.41 " |
| tankage | 1.70 " | |
| Feed per 100 pounds gain | | |
| corn germ meal | 327.4 " | 395.1 " |
| ground corn | 251.5 " | 22.7 " |
| tankage | | |
| Total feed | 578.9 " | 417.8 " |

The results as shown in this comparison indicate that *starch* corn germ meal is not a satisfactory substitute for corn when supplemented with tankage.

CORN GERM MEALS AS PARTIAL SUBSTITUTES FOR TANKAGE.—It has already been shown in the results reported in Table VII of this bulletin that corn germ meals were not efficient as sole substitutes for tankage in supplementing ground corn in rations for fattening hogs. The increasing demand for tankage is causing very high prices for this feed and if some cheaper feed such as corn germ meal could be mixed with tankage and efficiently supplement corn or other starchy feeds, considerable saving in the cost of production of pork might be effected. The question as to whether these corn germ meals could at least be used as partial substitutes for tankage is often asked. To obtain information on this question, two

lots of seven hogs each were fed in the second trial, November 6, 1917 to January 10, 1918, one receiving ground corn and a mixture of *starch* corn germ meal and tankage and the other receiving ground corn and tankage.

To obtain additional information on this question, five lots of seven hogs each were fed in the third trial reported in this bulletin. In this trial, Lot 1 was offered ground corn and a mixture of one part *starch* corn germ meal and one part tankage; Lot 2 was offered ground corn and a mixture of three parts *starch* corn germ meal and one part tankage; Lot 3 was offered ground corn and a mixture of three parts *hominy* corn germ meal and one part tankage; Lot 9 was allowed free access to ground corn in a self-feeder and fed twice daily a mixture of three parts *starch* corn germ meal and one part tankage in the form of a slop; Lot 6 was offered ground corn and tankage.

In feeding the slop mixture to the hogs in Lot 9, the intention at all times, was to offer all that the hogs would consume. The appetites of the hogs for the slop varied from time to time and the amount fed was correspondingly varied. At the beginning of the feeding period, the hogs were very greedy for the slop but after approximately 10 days, their consumption of the slop decreased very materially. Shortly before the close of the trial, the daily consumption again increased to some extent.

One pig in the lot receiving the slop mixture developed enteritis after being in the lot about two weeks, and died; therefore the results for this lot are calculated for six hogs only.

Table X shows the results of the use of corn germ meals as partial substitutes for tankage.

TABLE X.—Corn Germ Meals as Partial Substitutes for Tankage

Second Trial—November 6, 1917 to January 10, 1918—
65 Days—7 Hogs per Lot

Third Trial—March 27 to May 26, 1918—60 Days—
7 Hogs per Lot

| Ration | Lot 1 | Lot 9 | Lot 1 | Lot 2 | Lot 3 | Lot 9 ¹ | Lot 6 |
|--------------------------|---|--------------------------|---|--|--|--|--------------------------|
| | Ground corn plus mixture 1 part starch corn germ meal, 1 part tankage | Ground corn plus tankage | Ground corn plus mixture 1 part starch corn germ meal, 1 part tankage | Ground corn plus mixture 3 parts starch corn germ meal, 1 part tankage | Ground corn plus mixture 3 parts hominy corn germ meal, 1 part tankage | Ground corn plus slop of 3 parts starch corn germ meal, 1 part tankage | Ground corn plus tankage |
| Average initial weight | 131.0 lbs. | 129.1 lbs. | 95.4 lbs. | 96.1 lbs. | 95.0 lbs. | 100.3 lbs. | 95.6 lbs. |
| Average final weight | 270.0 " | 251.7 " | 199.1 " | 192.3 " | 213.1 " | 182.2 " | 211.4 " |
| Average daily gain | 2.14 " | 1.89 " | 1.73 " | 1.60 " | 1.97 " | 1.36 " | 1.93 " |
| Average daily feed | | | | | | | |
| ground corn | 10.79 " | 9.09 " | 7.00 " | 6.24 " | 5.95 " | 5.03 " | 7.05 " |
| corn germ meal | 0.21 " | | 0.54 " | 1.40 " | 1.47 " | 1.08 " | |
| tankage | 0.35 " | 0.50 " | 0.54 " | 0.47 " | 0.49 " | 0.36 " | 1.45 " |
| Feed per 100 pounds gain | | | | | | | |
| ground corn | 504.0 " | 482.0 " | 405.0 " | 389.0 " | 302.0 " | 369.0 " | 365.0 " |
| corn germ meal | 10.0 " | | 31.0 " | 87.0 " | 75.0 " | 79.0 " | |
| tankage | 16.5 " | 26.8 " | 31.0 " | 29.0 " | 25.0 " | 26.0 " | 75.0 " |
| Total feed | 530.5 " | 508.8 " | 467.0 " | 505.0 " | 402.0 " | 474.0 " | 440.0 " |

¹ Six pigs per lot

It will be observed in the second trial that the hogs fed a mixture of starch corn germ meal and tankage as the supplement for ground corn gained more rapidly than the hogs fed tankage alone as the supplement. The daily consumption of feed is also in favor of the hogs in this lot. In economy of production, however, the ground corn and tankage ration produced pork with a considerable less expenditure of feed.

Upon studying the results of the third trial, it will be noted that where the hogs were fed mixtures of *starch* corn germ meal and tankage, either dry or in slop, the rapidity of gains, the daily consumption of feeds and the economy of production are in favor of the hogs fed tankage as the sole supplement. Apparently the more *starch* corn germ meal fed in the mixture, the less efficient was the mixture as a supplement when compared with tankage alone.

The *hominy* corn germ meal proved to be an excellent partial substitute for tankage. The hogs fed the mixture of three parts hominy corn germ meal and one part tankage as the supplement made slightly more rapid gains with an expenditure of less feed per 100 pounds of gain than hogs fed tankage as the sole supplement. In this connection, it is interesting to note that the hogs in Lot 3 consumed less feed daily than those in Lots 1, 2 and 6 but made as much or more gain at a less expenditure of feed than any of the lots.

The hogs fed a mixture of three parts *starch* corn germ meal and one part tankage dry, in a self-feeder, as the supplement made more rapid gains, consumed much more feed daily but made gains slightly less economically than the hogs fed the same mixture in a slop twice daily as the supplement. The larger gains of the hogs in Lot 2 would ordinarily make them more profitable than the hogs in Lot 9. It will be observed that the hogs fed the mixture of *starch* corn germ meal and tankage, either in slop or dry, consumed practically the same amount of the mixture for each 100 pounds of gain. For some unknown reason, the hogs fed ground corn and tankage consumed an excessive amount of tankage but no bad effects from such a high consumption of tankage were observed.

PART IV

PALMO MIDDS

Three lots of seven hogs each were fed in the third trial from March 27 to May 26, 1918, for the purpose of comparing the feeding value of Palmo Midds and standard wheat middlings, and also comparing the value of these two feeds as partial substitutes for tankage. Throughout the feeding period, no differences were observed in the health or thrift of the hogs in any of the lots. Both rations were fed dry in self-feeders, the Palmo Midds being mixed in the proportion of three parts to one part of tankage in one ration and the wheat middlings mixed in the proportion of three parts to one of tankage in the other, before they were placed in the feeders.

In Table XI appear the results of this comparison.

TABLE XI.—Palmo Midds—March 27 to May 26, 1918—60 Days
Third Trial—7 Hogs per Lot

| Ration | Lot 4 | Lot 5 | Lot 6 |
|--------------------------|---|---|-----------------------------|
| | Ground corn plus mixture 3 parts wheat middlings and 1 part tankage | Ground corn plus mixture 3 parts Palmo Midds and 1 part tankage | Ground corn plus tankage |
| Average initial weight | 95.0 lbs. | 95.9 lbs. | 95.6 lbs. |
| Average final weight | 190.1 " | 206.1 " | 211.4 " |
| Average daily gain | 1.59 " | 1.84 " | 1.93 " |
| Average daily feed | | | |
| ground corn | 5.36 " | 7.37 " | 7.05 " |
| wheat middlings | 1.40 " | | |
| Palmo Midds | | 1.35 " | |
| tankage | 0.47 " | 0.45 " | 1.45 " |
| Feed per 100 pounds gain | | | |
| ground corn | 338.0 " | 401.0 " | 365.0 " |
| wheat middlings | 88.0 " | | |
| Palmo Midds | | 73.0 " | |
| tankage | 29.0 " | 24.0 " | 75.0 " |
| Total feed | 455.0 " | 498.0 " | 440.0 " |

It may be noted that the hogs fed Palmo Midds made greater gains than the hogs fed the standard middlings but not as much as the hogs receiving tankage as sole supplement. While the consumption of the mixture of Palmo Midds and tankage by the hogs in Lot 5 was practically the same as the consumption of standard middlings and tankage in Lot 4, the average daily consumption of corn was 2.01 pounds more in Lot 5. This lot of hogs also consumed more corn daily than the hogs in Lot 6 fed tankage as sole supplement. To produce 100 pounds of gain in Lot 5 58 pounds more feed were required than in Lot 6 and 43 pounds more feed than in Lot 4. Because of this larger feed requirement per 100 pounds of gain, the hogs in Lot 5 would not ordinarily return as much profit as the hogs in Lot 6. However, because of the difference in rapidity of gains the hogs fed Palmo Midds should return slightly larger profit than the hogs fed standard middlings.

Upon the basis of this work, Palmo Midds are, apparently, slightly superior to standard wheat middlings.

PART V

COMMERCIAL MIXED HOG FEEDS

The demand by many farmers for information on mixed hog feeds and the inquiries constantly received for experimental data upon the relative feeding value of commercial mixed hog feeds as compared with rations such as corn and tankage, led to the feeding of two of the more commonly used commercial mixed hog feeds designated as commercial mixed hog feeds Nos. 1 and 2 for the purpose of identification in the third trial. The trial was started March 27 and extended to May 26, 1918 or a

period of 60 days. Three lots of seven hogs each were fed. The two commercial mixed hog feeds were fed alone, dry and in self-feeders, and the ground corn and tankage were fed dry in separate compartments of the self-feeder.

At the beginning of the feeding period, the daily consumption of feeds as indicated by the necessary refilling of the feeders, was approximately the same in all three lots. After the first 10 days, however, the hogs receiving the feed herein called commercial mixed hog feed No. 1 showed a decrease in the relative consumption of feed as compared with the other two lots. This decreased consumption was observed during the remainder of the feeding period. After 20 days, the hogs fed ground corn and tankage consumed slightly more feed daily than the hogs receiving the feed herein called commercial mixed hog feed No. 2. This difference in feed consumption was maintained to the end of the feeding period. However, the difference in these two lots was not as noticeable as with the hogs fed commercial mixed hog feed No. 1.

In both of the lots fed the commercial mixed hog feeds, considerable laxativeness was observed. This was especially noticeable with the hogs fed commercial mixed hog feed No. 2.

Table XII shows the results of the work with commercial mixed hog feeds.

TABLE XII.—Commercial Mixed Hog Feeds vs. Ground Corn and Tankage—March 27 to May 26, 1918—60 Days—7 Hogs per Lot

| Ration | Lot 7 | Lot 8 | Lot 6 |
|--------------------------|---------------------------------|---------------------------------|--------------------------|
| | Commercial mixed hog feed No. 1 | Commercial mixed hog feed No. 2 | Ground corn plus tankage |
| Average initial weight | 94.7 lbs. | 95.7 lbs. | 95.6 lbs. |
| Average final weight | 176.0 " | 195.3 " | 211.4 " |
| Average daily gain | 1.36 " | 1.66 " | 1.93 " |
| Average daily feed | | | |
| ground corn | | | 7.05 " |
| tankage | | | 1.45 " |
| commercial feed | 6.16 " | 8.00 " | |
| Feed per 100 pounds gain | | | |
| ground corn | | | 365.0 " |
| tankage | | | 75.0 " |
| commercial feed | 455.0 " | 482.0 " | |
| Total feed | 455.0 " | 482.0 " | 440.0 " |

It will be observed that the hogs fed ground corn and tankage gained 42 per cent. more rapidly than the hogs fed commercial mixed hog feed No. 1 and 16.2 per cent. more rapidly than those fed commercial mixed hog feed No. 2. The daily consumption of feed was greater in the lot receiving ground corn and tankage. The hogs in Lot 6 consumed daily per head 0.5 pound more feed than those in Lot 8 and 2.34 pounds more than those in Lot 7. The feed required per 100 pounds of gain was 365 pounds of ground corn and 75 pounds of tankage, a total of 440 pounds in Lot 6; 482 pounds commercial mixed hog feed No. 2 in Lot 8 and 455 pounds of commercial mixed hog feed No. 1 in Lot 7.

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Agricultural Experiment Station

BULLETIN No. 220

SEPTEMBER, 1918



CATTLE FEEDING

XIV

WINTER STEER FEEDING

1917-1918

- Part I. Comparison of Rations with Different Amounts of Corn and No Corn for Fattening Two Year Old Steers ✓
Part II. Corn Silage vs. Corn and Soybean Silage for Fattening Two Year Old Steers ✓
Part III. Value of Cottonseed Meal in Rations Containing Corn Silage or Corn and Soybean Silage for Fattening Two Year Old Steers ✓

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WINTER STEER FEEDING

1917-1918

J. H. SKINNER

C. G. STARR

SUMMARY

PART I

COMPARISON OF RATIONS WITH DIFFERENT AMOUNTS OF CORN AND NO CORN FOR FATTENING TWO YEAR OLD STEERS

The addition of a moderate amount of corn, 10.73 pounds daily per steer, to the basal ration of corn silage, clover hay and cottonseed meal, increased the average daily gain 0.74 pound per steer. In 120 days, this increased rate of gain due to the feeding of the corn, amounted to 88 pounds per steer.

The addition of a small amount of corn, 5.42 pounds daily per steer, to the basal ration of corn silage, clover hay and cottonseed meal, increased the average daily gains 0.21 pound or 24.6 pounds per steer for the entire feeding period.

The addition of corn to the basal ration during the last 40 days of the feeding period, increased the average daily gain 0.11 pound or 12.7 pounds per steer for the entire feeding period.

The addition of corn to the basal ration during the last 40 days of the feeding period, increased the average daily gain per steer during the last month of the feeding period 0.88 pound.

Where no corn was fed in the ration, the increased average daily consumption of silage was 15.97 pounds per steer, more than the amount consumed by the steers in the lot receiving a medium feed of corn.

The feeding of one half ration of corn only increased the silage consumption 7.30 pounds daily per steer.

Where no corn was fed until the last 40 days the average daily consumption of silage was increased 9.07 pounds per steer.

The cattle receiving the basal ration of corn silage, clover hay and cottonseed meal produced beef at a cost of \$19.88 per hundred pounds. The necessary selling price to break even on these cattle, was \$11.70 per hundred pounds. The cattle were valued at \$14.55 in the lot and returned a profit of \$35.55, not including pork.

The cattle receiving corn during the last 40 days in addition to the basal ration, made gains at a cost of \$21.79 per hundred pounds. The necessary selling price for this lot was \$12.11 per hundred pounds, while they were valued at the close of the experiment at \$14.85. Each steer returned a profit of \$34.62, not including pork.

The cattle receiving a small amount of corn throughout the feeding period in addition to the basal ration produced gains at a cost of \$22.12 per hundred. Their necessary selling price was \$12.26 while they were valued at \$14.85. The profit per steer not including pork was \$32.88.

The cost per hundred pounds of gain with cattle receiving the largest amount of corn in addition to the basal ration was \$20.43; the necessary selling price was \$12.36; the actual valuation was \$15.35 and the profit per steer, not including pork, was \$39.85.

Valuing the pork produced at \$17.50 per hundred pounds, the average steer receiving the basal ration returned a total profit of \$37.35; the average steer receiving corn the last 40 days, returned a total profit of \$37.79; the average steer receiving a small amount of corn continuously returned a total profit of \$37.46; the average steer receiving the largest amount of corn returned a total profit of \$47.24.

PART II

CORN SILAGE VS. CORN AND SOYBEAN SILAGE FOR FATTENING TWO YEAR OLD STEERS

The average daily gain of the cattle fed corn and soybean silage in addition to corn, cottonseed meal and clover hay was 0.1 pound lower than cattle receiving straight corn silage in addition to the same basal ration.

Cattle receiving corn and soybean silage in addition to corn and clover hay made 0.13 pound more rapid daily gains than cattle receiving corn silage in addition to corn and clover hay.

There was practically no difference in the average daily feed consumption of the cattle receiving corn silage or corn and soybean silage. When cattle received cottonseed meal, slightly more feed was consumed by the cattle fed corn and soybean silage. Where no cottonseed meal was fed, the cattle fed corn silage consumed slightly more feed.

The total profits per steer in the lots fed corn silage were \$47.24 and \$35.34 respectively. In the lots receiving corn and soybean silage, the average total profits were \$42.77 and \$33.73 respectively.

On the basis of one year's trial but slight difference was found in the relative feeding value, pound for pound of corn silage and corn and soybean silage.

PART III

VALUE OF COTTONSEED MEAL IN RATIONS CONTAINING CORN SILAGE OR CORN AND SOYBEAN SILAGE FOR FATTENING TWO YEAR OLD STEERS

The addition of cottonseed meal to a ration of corn, corn silage and clover hay, produced an increased average daily gain of 0.61 pound. In the 120-day feeding period, this increase amounted to 72.6 pounds per steer.

The addition of cottonseed meal to a ration of corn, corn and soybean silage and clover hay, produced an increased average daily gain of 0.38 pound or a total increase of 46.3 pounds per steer.

The addition of cottonseed meal increased the total feed consumption in both rations. At no time would the cattle not receiving cottonseed meal, consume the same amount of feed, either concentrates or roughage, as was consumed by the cattle receiving cottonseed meal.

When cottonseed meal was added to a ration of corn, corn silage and clover hay, the cost of gains per hundred pounds was decreased \$3.31 or 3.3 cents per pound. The difference in the valuation of the cattle at the end of the feeding period was 70 cents per hundred pounds in favor of the cattle fed cottonseed meal. The decreased cost of gains and the increased selling price due to the addition of the cottonseed meal, caused a difference in total profit of \$11.90 per steer in favor of the cattle fed cottonseed meal.

When cottonseed meal was added to a ration of corn, corn and soy bean silage and clover hay, the cost of producing beef was reduced \$0.65 per hundred pounds. The better finish of the cattle fed cottonseed meal added \$0.90 per hundred pounds to the valuation. The total profit per steer in the lot receiving cottonseed meal in addition to corn, corn and soybean silage and clover hay was \$9.04 more than in the lot receiving no cottonseed meal.

INTRODUCTION

The cattle feeding trials conducted during the winter of 1917-18 by the Purdue University Agricultural Experiment Station, were under exceptional economic conditions. The cattle were purchased at the highest price ever paid for feeding cattle by this institution. The corn over the major portion of the Corn Belt was of poor quality and also high priced. During the larger part of the feeding period, economic conditions occasioned by the war and its influences, apparently precluded any profit in feeding. However, during the last four or five weeks of the period, market conditions changed, prices for good cattle increased and as a result, more profit per steer was made than ever before in the history of 14 years of cattle feeding at this station.

OBJECT

The objects of the trials reported in this bulletin were: 1—to obtain additional information concerning the relative value of rations containing different amounts of corn, corn fed during the last period of the trials only and, rations without corn; 2—the relative feeding value of corn silage and corn and soybean silage; and 3—the value of cottonseed meal in rations containing large amounts of corn silage or corn and soybean silage fed to fattening two year old steers.

PLAN

Seventy good two year old feeding steers were divided into seven lots of 10 each. The cattle were divided as evenly as possible in respect to weight, size, condition, quality and thrift. The following rations were fed:

Lot. 1. Cottonseed meal, corn silage, and clover hay; shelled corn last 40 days.

Lot 2. Cottonseed meal, corn silage and clover hay.

Lot 3. Cottonseed meal, corn silage, clover hay, and one-half feed of shelled corn based on amount consumed in Lot 4.

Lot 4. Cottonseed meal, corn silage, clover hay and shelled corn.

Lot 5. Cottonseed meal, corn and soybean silage, clover hay and shelled corn.

Lot 6. Corn and soybean silage, clover hay and shelled corn.

Lot 7. Corn silage, clover hay and shelled corn.

The cottonseed meal was fed at the rate of 2.5 pounds of meal daily per 1000 pounds of live weight. The corn in Lot 3 was regulated by the amount fed in Lot 4, one-half of the amount consumed by Lot 4, being the daily ration of Lot 3.

SHELTER, FEED LOTS AND WATER SUPPLY

Each lot of 10 steers occupied similar quarters, which consisted of an uncovered concreted lot 20 by 28 feet and an open shed 16 by 28 feet on the west. The sheds were kept as well bedded as possible. Owing to the severe winter, with large amounts of ice and snow, the spring thaw caused the open lots to become very sloppy. At all times, however, the cattle had dry beds in the sheds.

The cattle were fed under cover. Water was supplied in galvanized iron troughs adjacent to the open lots, care being taken to keep the water fresh in these troughs. No method of heating was used but the ice accumulating in the troughs was removed regularly twice daily. The cattle had water before them at all times.

WEIGHTS

Each animal was weighed for three consecutive days at the beginning and end of the trial and every 30 days during the trial. The averages of the three weights at the beginning and end of the feeding period were taken as the initial and final weights respectively. Each lot was also weighed as a group every 10 days. The weights were taken at 9:00 a. m. without change in feed or water.

The identity of each steer was known by a numbered brass tag on a strap fastened around the neck. The identity of the hogs was known by numbered aluminum ear tags.

METHODS OF FEEDING

The method of feeding in all lots was practically the same. In lots 3, 4 and 5, the corn with the cottonseed meal sprinkled over it was fed the first thing in the morning and evening at approximately 6:00 a. m. and 4:30 p. m. The silage was placed in the troughs after the corn had been consumed. In Lots 6 and 7 the corn was fed first. In Lots 1 and 2, the cottonseed meal was sprinkled over the silage when fed. In Lots 3, 4 and 5, cottonseed meal was sprinkled over the shelled corn. The hay was fed once daily, being placed in the hay mangers in the morning.

The amount of silage fed in all lots was governed by the appetites of the cattle. The intention was to furnish all that the cattle would consume within two hours after being placed in the troughs. The amount of hay was determined by the need of the cattle for dry roughage and their appetite for the hay. Only enough was fed so that the cattle would consume the hay without waste or leaving any appreciable amount.

Salt was given to all lots at as frequent intervals as was required.

DESCRIPTION OF THE CATTLE

The cattle in these trials were selected from a large drove which had been pastured for several months previous in Jasper County, Indiana. As selected, they were very uniform in weight, age, quality, condition and thrift. Practically all were of Shorthorn breeding.

These cattle were received at the experimental feeding lots early in November. Until the beginning of the experiment they were maintained on a light feed of corn silage and alfalfa hay. No attempt was made to make them gain, the intention being to maintain the cattle in thrifty condition.

METHOD OF VALUING CATTLE

In order that a fair valuation could be placed on the cattle at the beginning of the feeding period and to eliminate any effect upon the financial statements due to fluctuations of markets, the cattle were valued on the basis of the Chicago market by Messrs. John T. Alexander and Mat Welch, of Chicago. To this valuation 15 cents per hundred pounds was added to cover cost of shipping from Chicago to LaFayette, making the initial valuation \$10.15 per hundred pounds.

At the close of the feeding period, the different lots of cattle were valued by Messrs. John T. Alexander and Fred Bowra, of Chicago. These values were again on the basis of the Chicago market. From these values, 75 cents per hundred pounds was deducted to cover the cost of shipping, selling and shrinkage in placing the cattle upon the Chicago market. All financial statements are based upon these initial and final valuations.

QUALITY AND PRICES OF FEEDS

The corn used in these trials was but slightly above the average quality of corn in the vicinity of the Experiment Station. At all times there were considerable rotten and discolored kernels with a moisture content rarely below 25 per cent. Owing to the absence of any standard market for this corn, a fixed price of \$1.12 per bushel is used in the financial statements. This was slightly higher than the prices paid for the ordinary run of corn received by the LaFayette elevators during the feeding period.

The cottonseed meal was of choice grade, guaranteed to contain 41 per cent. crude protein and cost \$53.50 per ton f. o. b., LaFayette. The clover hay was of good quality and is figured in at \$25.00 per ton.

The corn silage and corn and soybean silage were made from corn and soybeans on the Purdue Farm. The corn was thought to be too green for the best silage although the quality of the silage proved to be excellent. The yield of the corn was approximately 30 bushels per acre. Both silages are valued at \$7.50 per ton in the financial statements.

HOGS

At the beginning of the trials, due to a very great demand and an acute scarcity of good stock hogs, it was impossible to secure the number desired—10 hogs per lot. Six hogs were placed in Lots 4, 5, 6, and 7; three hogs in Lot 3; and two hogs in Lots 1 and 2. Thirty days before the end of the trials, four more hogs were placed in Lot 1. The average

weight of the hogs was less than 100 pounds. Due to this light weight and the extreme winter, a few of the hogs did not gain as they should.

Extra corn was fed to the hogs in each lot according to appetites. In addition, three hogs in Lots 4, 5, 6, and 7 received a small quantity of a mixture of wheat shorts and tankage, once daily.

METHOD OF STARTING CATTLE ON FEED

At the beginning of the feeding period, the silage was increased as rapidly as the cattle would consume the added amount. The cottonseed meal was fed at the rate of one pound per steer daily and gradually increased, until at the end of 10 days, the cattle were consuming 2.5 pounds daily per 1,000 pounds of live weight. The shelled corn was fed at the rate of 2.0 pounds daily per steer in Lot 3 and 4.0 pounds in the other lots receiving corn. In 14 days, Lot 3 was receiving 5.0 pounds of corn daily per steer and Lots 4, 5, 6, and 7 were receiving 10 pounds of corn daily per head. This amount of corn remained constant in Lots 4 and 5 while an attempt was made to increase the amount in Lots 6 and 7 without seriously decreasing the consumption of silage. Efforts to increase the average daily consumption above 11 pounds in these two lots during the first 30 days, resulted in the cattle refusing to consume the desired amount of silage, therefore the amount of corn was held to 11 pounds daily per steer.

At the beginning of the second month, the amount of corn in Lot 3 was raised to 6.0 pounds daily per steer, in Lots 4 and 5 to 12 pounds, and in Lots 6 and 7 to 13 pounds. No further increase in the amount of corn was made in Lots 3, 4, and 5. Any attempt to raise the amount of corn fed to Lots 6 and 7 to equal the amount of concentrates, both corn and cottonseed meal, in Lots 4 and 5, resulted in the cattle refusing considerable amounts of silage.

At the beginning of the feeding period, the alfalfa hay was abruptly replaced by clover hay without any bad effect upon the cattle.

PART I

COMPARISON OF RATIONS WITH DIFFERENT AMOUNTS OF CORN AND NO CORN FOR FATTENING TWO YEAR OLD STEERS

The high prices for corn and the possible utilization by fattening cattle of large quantities of ordinary unmarketable farm roughages such as corn stalks and leaves, when made into silage occasioned the beginning of a new series of feeding trials last year. The object of this series was to obtain information as to the relative influence of considerable quantities of corn, small quantities of corn and no corn at all in the rations of fattening cattle. The increased demand for corn for human consumption and for pork production due to war influences and demands caused a still larger interest this year in the finishing of cattle for the market with little or no corn. The trials reported herein are the second of the series. The results of the first trials are reported in Bulletin No. 206.

For two years previous to the trials reported, attempts were made to save corn by feeding no corn the first month and slightly increasing

amounts in the succeeding months of the feeding period. It not having proved profitable, this particular line of work was replaced in 1917-18 by a lot of cattle (Lot 1) to which no corn was fed until the last 40 days, when a large amount of corn was introduced. In addition, three other lots were fed. Lot 2 received no corn at any time, receiving only the ration of cottonseed meal, corn silage and clover hay. Lot 3 received a small amount of corn daily, one-half amount fed in Lot 4, while Lot 4 received, what is for convenience, called a medium ration of corn throughout the feeding period in addition to the basal ration. The ration of corn in Lot 4, although not large, is considered a full feed of corn.

The average daily feed consumption by months and the average daily consumption for the entire period is shown in Table I.

TABLE I.—Average Amount of Feed Consumed Daily per Head by Fattening Steers. December 13, 1917 to April 12, 1918 (120 days)

| Ration | Lot 1 | Lot 2 | Lot 3 | Lot 4 |
|--------------------------------------|---|---|--|--|
| | cottonseed meal, corn silage, clover hay, shelled corn last 40 days | cottonseed meal, corn silage, clover hay, no corn | cottonseed meal, corn silage, clover hay, one-half feed shelled corn | cottonseed meal, corn silage, clover hay, medium feed shelled corn |
| First month | | | | |
| shelled corn | | | 4.25 lbs. | 8.50 lbs. |
| cottonseed meal | 2.33 lbs. | 2.33 lbs. | 2.30 " | 2.35 " |
| corn silage | 55.03 " | 55.03 " | 48.67 " | 41.77 " |
| clover hay | 4.63 " | 4.72 " | 4.85 " | 4.85 " |
| Second month | | | | |
| shelled corn | | | 5.36 " | 10.41 " |
| cottonseed meal | 2.83 " | 2.83 " | 2.91 " | 2.92 " |
| corn silage | 55.05 " | 56.58 " | 49.17 " | 41.02 " |
| clover hay | 3.85 " | 4.17 " | 4.93 " | 4.70 " |
| Third month | | | | |
| shelled corn | 2.81 " | | 6.07 " | 12.00 " |
| cottonseed meal | 2.95 " | 2.98 " | 3.02 " | 3.10 " |
| corn silage | 50.20 " | 55.50 " | 45.48 " | 37.67 " |
| clover hay | 3.58 " | 3.85 " | 4.20 " | 3.72 " |
| Fourth month | | | | |
| shelled corn | 13.79 " | | 6.0 " | 12.00 " |
| cottonseed meal | 3.07 " | 3.07 " | 3.11 " | 3.23 " |
| corn silage | 29.15 " | 49.92 " | 39.06 " | 32.72 " |
| clover hay | 3.92 " | 3.93 " | 4.44 " | 3.93 " |
| Average daily feed for entire period | | | | |
| shelled corn | 4.15 lbs. | | 5.42 lbs. | 10.73 lbs. |
| cottonseed meal | 2.80 " | 2.80 lbs. | 2.83 " | 2.90 " |
| corn silage | 47.36 " | 54.26 " | 45.59 " | 38.29 " |
| clover hay | 4.00 " | 4.17 " | 4.63 " | 4.30 " |

It will be noted that until corn was introduced into the ration in Lot 1, the feed consumption of Lots 1 and 2 was about equal. The steers in Lot 2 apparently had slightly better appetites than those in Lot 1.

After corn was introduced into the ration of Lot 1, the average daily consumption of corn silage dropped very materially. During the last month, the average daily consumption of corn silage in Lot 1 was 20.77 pounds less than in Lot 2. It will also be observed that as the amount of corn increased in Lots 3 and 4, the consumption of the cheaper feed, corn silage, decreased materially. The largest daily consumption of feed in all lots occurred during the second month of the feeding period. The maximum daily consumption of silage was 58 pounds per steer in Lot 2. This consumption was maintained for a short period only.

As the feeding period lengthened, it will be noted that the total daily consumption of feed decreased in all lots.

The average daily gains of the different lots both by months and for the entire period are shown in Table II.

TABLE II.—Daily Gain per Steer by Months, December 13, 1917, to April 12, 1918 (120 days)

| Ration | Lot 1 | Lot 2 | Lot 3 | Lot 4 |
|--------------------------------------|--|---|---|--|
| | cottonseed meal, corn silage, clover hay, shelled corn last 40 days | cottonseed meal clover hay, corn silage, no corn | cottonseed meal, corn silage, clover hay, one-half feed shelled corn | cottonseed meal, corn silage clover hay, shelled corn |
| First month | 1.57 lbs. ¹ | 1.69 lbs. ¹ | 1.44 lbs. ¹ | 2.29 lbs. ¹ |
| Second month | 1.90 " | 2.47 " | 3.14 " | 3.32 " |
| Third month | 1.42 " | 1.18 " | 1.57 " | 1.75 " |
| Fourth month | 2.19 " | 1.31 " | 1.31 " | 2.22 " |
| Total gain per steer | 212.2 lbs. | 199.5 lbs. | 224.1 lbs. | 287.5 lbs. |
| Average daily gain for entire period | 1.77 " | 1.66 " | 1.87 " | 2.40 " |

¹ Cattle badly shrunk due to blizzard January 12, 1918—day of weighing

Due to a very severe blizzard with heavy snow fall and extreme cold occurring at the time of the first 30-day weighing, none of the lots show very good gains for the first month. These weights actually showed a loss over the group weights taken 10 days previously.

It will be observed that the cattle receiving the largest amount of corn made the highest average daily gain and maintained their gains to the end of the feeding period. This lot of cattle averaged approximately three-quarters of a pound more gain per day for the entire 120-days feeding period than the cattle in Lot 2, or an increased rate of 44.6 per cent.

The cattle receiving one-half feed of corn made an increased average daily gain over Lot 2 of 0.21 pound or approximately 12.6 per cent. more rapid gains. In Lot 1 the addition of corn during the last 40 days of the feeding period increased the average daily gains 0.11 pound or 6.7 per cent. The effect of adding corn, upon the rate of gain during the

latter part of the feeding period may be noted in a comparison of the average daily gains of Lots 1 and 2 during the fourth month. Lot 1 made an average daily gain of 2.19 pounds, while Lot 2 made only 1.31 pounds gain daily per steer.

The influence of different amounts of corn upon the cost of gains is shown in Table III.

TABLE III.—Average Amount of Feed Consumed per Hundred Pounds of Gain and Cost per Hundred Pounds of Gain

| Ration | Lot 1 | | Lot 2 | | Lot 3 | | Lot 4 | |
|------------------------------------|---|------|---|------|--|------|--|------|
| | cottonseed meal, corn silage, clover hay, shelled corn last 40 days | | cottonseed meal, corn silage, clover hay, no corn | | cottonseed meal, corn silage, clover hay, one-half feed shelled corn | | cottonseed meal, corn silage, clover hay, shelled corn | |
| Feed per 100 pounds gain | | | | | | | | |
| shelled corn | 234 | lbs. | | | 290 | lbs. | 448 | lbs. |
| cottonseed meal | 158 | " | 169 | lbs. | 152 | " | 121 | " |
| corn silage | 2678 | " | 3264 | " | 2441 | " | 1598 | " |
| clover hay | 226 | " | 251 | " | 248 | " | 179 | " |
| Cost per cwt. of gain | \$21.79 | | \$19.88 | | \$22.12 | | \$20.43 | |
| Cost per cwt. of gain ¹ | 24.72 | | 21.52 | | 25.32 | | 24.27 | |

¹ Corn at \$1.50 per bushel and corn silage at \$8.50 per ton

When the economy of producing 100 pounds of beef is considered, the ration with no corn is superior to all of the others. The gains on the cattle fed a medium ration of corn in Lot 4 were the next lowest in cost of production. Even when corn and corn silage are advanced in price, the ration containing a medium amount of corn remains more economical in relation to cost of gain than the rations fed Lots 1 and 3.

In Table IV, is given the summary of the four lots.

TABLE IV.—Summary of Part I

| Ration | Lot 1 | | Lot 2 | | Lot 3 ¹ | | Lot 4 | |
|---|---|------|---|------|--|------|--|------|
| | cottonseed meal, corn silage, clover hay, shelled corn last 40 days | | cottonseed meal, corn silage, clover hay, no corn | | cottonseed meal, corn silage, clover hay, one-half feed shelled corn | | cottonseed meal, corn silage, clover hay, medium feed shelled corn | |
| Initial value per cwt. | \$10.15 | | \$10.15 | | \$10.15 | | \$10.15 | |
| Initial weight | 10500 | lbs. | 10497 | lbs. | 9418 | lbs. | 10472 | lbs. |
| Final weight | 12622 | " | 12492 | " | 11435 | " | 13347 | " |
| Total gain | 2122 | " | 1995 | " | 2017 | " | 2875 | " |
| Average daily gain | 1.77 | " | 1.66 | " | 1.87 | " | 2.40 | " |
| Total feed consumed | | | | | | | | |
| shelled corn | 4979 | " | | | 5856 | " | 12872 | " |
| cottonseed meal | 3355 | " | 3365 | " | 3062 | " | 3480 | " |
| corn silage | 56830 | " | 65110 | " | 49242 | " | 45950 | " |
| clover hay | 4795 | " | 5000 | " | 5005 | " | 5160 | " |
| Daily feed per steer | | | | | | | | |
| shelled corn | 4.15 ² | " | | | 5.42 | " | 10.73 | " |
| cottonseed meal | 2.80 | " | 2.80 | " | 2.83 | " | 2.90 | " |
| corn silage | 47.36 | " | 54.26 | " | 45.59 | " | 38.29 | " |
| clover hay | 4.00 | " | 4.17 | " | 4.63 | " | 4.30 | " |
| Feed per pound gain | | | | | | | | |
| shelled corn | 2.34 | " | | | 2.90 | " | 4.48 | " |
| cottonseed meal | 1.58 | " | 1.69 | " | 1.52 | " | 1.21 | " |
| corn silage | 26.78 | " | 32.64 | " | 24.41 | " | 15.98 | " |
| clover hay | 2.26 | " | 2.51 | " | 2.48 | " | 1.79 | " |
| Cost of gain per cwt. | \$21.79 | | \$19.88 | | \$22.12 | | \$20.43 | |
| Necessary selling price | 12.11 | | 11.70 | | 12.26 | | 12.36 | |
| Actual selling price in lots without shrink | 14.85 | | 14.55 | | 14.85 | | 15.35 | |
| Profit per steer not including pork | 34.62 | | 35.55 | | 32.88 | | 39.85 | |
| Pork produced | 265 | lbs. | 198 | lbs. | 322 | lbs. | 651 | lbs. |
| Corn fed to hogs | 753 | " | 831 | " | 758 | " | 1594 | " |
| Shorts fed to hogs | | | | | | | 109 | " |
| Tankage fed to hogs | | | | | | | 109 | " |
| Profit per steer including pork | \$37.79 | | \$37.35 | | \$37.46 | | \$47.24 | |

¹ Nine steers in lot² Average daily corn last 40 days approximately 14 pounds

Based on the following prices for feeds: shelled corn, \$1.12 per bushel (corn varied 25 to 30 per cent. in moisture content); cottonseed meal, \$53.50 per ton; clover hay, \$25.00 per ton; corn silage, \$7.50 per ton

Pork is valued at \$17.50 per cwt. and cost of additional feed consumed by hogs is deducted before value of pork from droppings is accerited to receipts from cattle

It would have been necessary to value the cattle in Lot 2 receiving no corn at \$11.70 per hundred pounds, or at a margin of \$1.55 over cost price per hundred pounds to pay all costs of feed and original cost of cattle. The cattle in Lot 1 should have brought \$12.11 or a margin of \$1.96 to break even. Lot 3 required a price of \$12.26 per hundred pounds, or a margin of \$2.11 per hundred pounds to pay all costs. The necessary selling price for Lot 4 was \$12.36 or a margin of \$2.21 per hundred pounds.

Actually a margin of \$4.40 per hundred was received for the cattle in Lot 2, making a profit of \$35.55 per steer, without pork. A margin of \$4.70 per hundred pounds in Lot 1 returned an average profit without pork of \$34.62. The same margin in Lot 3 returned an average profit of \$32.88. In Lot 4, a margin of \$5.20 returned an average profit without pork of \$39.85.

The cattle fed a medium amount of corn produced the largest amount of pork. The value of the pork produced behind the cattle increased the profits in Lot 1 to \$37.79; in Lot 2, \$37.35; in Lot 3, \$37.46; in Lot 4, \$47.24. Adding the value of pork, the cattle in Lot 4 fed approximately 11 pounds of shelled corn daily per head in addition to the basal ration, returned an increased profit of \$9.89 over those receiving no corn.

In Table V the prices of cottonseed meal and clover hay remain constant, while the prices of corn and silage are increased proportionately. No allowance is made for the value of pork. The influence of the price of corn upon the financial returns of the four rations is shown in Table V.

TABLE V.—Necessary Selling Price with Corn at Varying Prices and Corn Silage at Corresponding Prices (Pork not included)

| Price per bushel corn | Price per ton silage | Lot 1 | Lot 2 | Lot 3 | Lot 4 |
|-----------------------------|----------------------------|--|--|---|---|
| | | cottonseed meal, corn silage, clover hay, shelled corn last 40 days | cottonseed meal, corn silage, clover hay, no corn | cottonseed meal, corn silage, clover hay, one-half feed shelled corn | cottonseed meal, corn silage, clover hay, shelled corn |
| \$0.50 | \$ 3.50 | \$10.77 | \$10.66 | \$10.83 | \$10.61 |
| 0.75 | 4.75 | 11.23 | 10.99 | 11.33 | 11.25 |
| 1.00 | 6.00 | 11.68 | 11.31 | 11.83 | 11.90 |
| 1.25 | 7.25 | 12.14 | 11.64 | 12.33 | 12.55 |
| 1.50 | 8.50 | 12.60 | 11.96 | 12.82 | 13.19 |
| 1.75 | 9.75 | 13.06 | 12.29 | 13.32 | 13.84 |
| 2.00 | 11.00 | 13.51 | 12.62 | 13.82 | 14.48 |

PART II

CORN SILAGE VS. CORN AND SOYBEAN SILAGE FOR FATTENING TWO YEAR OLD STEERS

The growing of soybeans in rows with the corn is coming to be a rather common practice in many communities in Indiana. Many men owning silos have found that an increased tonnage of silage per acre can be secured by using the corn and soybean combination for silage. In some cases, the soybeans have been grown separately and mixed with the corn at the time of filling the silo. There has been a considerable discussion as to the relative feeding value of this mixed silage as compared with straight corn silage. Whether or not sufficient crude protein could be placed in the silage by the addition of the soybeans, so that the expensive commercial protein concentrates could profitably be eliminated from the rations for fattening cattle is an important question. If by growing soybeans and mixing them with corn, either by growing them together in the row or by mixing at the silo at the time of filling, the content of crude protein in the silage could be increased to a point sufficient to balance the rations for fattening cattle, a very large economy in the cost of producing beef could be established. The Station inaugurated a series of trials in 1917-18 to obtain information on this subject.

The corn and soybeans were grown separately and the two crops were mixed at the cutter in the proportion of two parts by weight of green corn and one part green soybeans. The corn used was similar in yield and stage of maturity to that used for the straight corn silage. The soybeans were still green, no pods having turned brown but the beans were well formed in the pods and the leaves were turning yellow.

Four lots of cattle were used in this trial. Lots 4 and 5 were fed a basal ration of shelled corn, cottonseed meal and clover hay. Lot 4 received the straight corn silage in addition to the basal ration while Lot 5 received the corn and soybean silage in addition to the basal ration. This comparison should give information as to the relative value of the two silages when the rations were supplemented with a protein concentrate.

Lots 6 and 7 were fed a basal ration of shelled corn and clover hay. In addition to this basal ration, Lot 6 received corn and soybean silage and Lot 7 received straight corn silage. This comparison should give information as to the relative feeding value of the two silages when not supplemented with a protein concentrate.

Practically no difference was observed in the appetites of the steers for the different kinds of silage. Each lot maintained its appetite throughout the feeding period. It was observed that during the trials the cattle in Lot 5, receiving corn and soybean silage, cottonseed meal, clover hay and shelled corn, were somewhat more laxative than the cattle in the other lots. At all times, however, during the feeding period, all lots of cattle were slightly more laxative than was desirable. This looseness was probably due to the laxative effect of the two silages, made from rather immature corn. To check the tendency to looseness, the quantity of hay fed to all lots was somewhat higher than in former years.

During the feeding period, it was observed that the corn and soybean silage would not keep fresh as long when exposed to the air as the straight corn silage.

Table VI is given showing the feed consumption of the different lots by months and for the entire feeding period.

TABLE VI.—Average Amount of Feed Consumed Daily per Head by Fattening Steers by Months—December 13, 1917 to April 12, 1918 (120 days)

| Ration | Lot 4 | Lot 5 | Lot 7 | Lot 6 |
|--------------------------------------|---|---|---|---|
| | cottonseed meal, corn silage, clover hay, shelled corn | cottonseed meal, corn and soybean silage, clover hay, shelled corn | corn silage, clover hay, shelled corn | corn and soybean silage, clover hay, shelled corn |
| First month | | | | |
| shelled corn | 8.50 lbs. | 8.50 lbs. | 9.19 lbs. | 9.19 lbs. |
| cottonseed meal | 2.35 " | 2.33 " | | |
| corn silage | 41.77 " | 41.43 " | 41.15 " | 41.15 " |
| clover hay | 4.85 " | 5.12 " | 4.35 " | 4.57 " |
| Second month | | | | |
| shelled corn | 10.41 " | 10.41 " | 11.41 " | 11.41 " |
| cottonseed meal | 2.92 " | 2.90 " | | |
| corn silage | 41.02 " | 41.32 " | 38.90 " | 38.50 " |
| clover hay | 4.70 " | 4.98 " | 4.90 " | 4.93 " |
| Third month | | | | |
| shelled corn | 12.00 " | 12.00 " | 13.00 " | 13.00 " |
| cottonseed meal | 3.10 " | 3.12 " | | |
| corn silage | 37.67 " | 37.80 " | 35.00 " | 33.90 " |
| clover hay | 3.72 " | 3.95 " | 3.95 " | 3.95 " |
| Fourth month | | | | |
| shelled corn | 12.00 " | 12.00 " | 13.00 " | 13.00 " |
| cottonseed meal | 3.23 " | 3.23 " | | |
| corn silage | 32.72 " | 35.87 " | 33.03 " | 32.97 " |
| clover hay | 3.93 " | 4.00 " | 3.87 " | 3.87 " |
| Average daily feed for entire period | | | | |
| shelled corn | 10.73 lbs. | 10.73 lbs. | 11.65 lbs. | 11.65 lbs. |
| cottonseed meal | 2.90 " | 2.90 " | | |
| corn silage | 38.29 " | 39.10 " | 37.02 " | 36.63 " |
| clover hay | 4.30 " | 4.15 " | 4.27 " | 4.33 " |

The amount of shelled corn fed daily to the lots was purposely fixed. The amount given daily to Lots 4 and 5 was the same. Lots 6 and 7 received daily the same amount of corn. The cottonseed meal was fed on the basis of 2.5 pounds per 1000 pounds of live weight, hence the daily average consumption varied as the live weight varied. The silages were fed according to the appetites of the animals.

Table VII, gives the average daily gain by months and for the entire feeding period.

TABLE VII.—Average Daily Gain by Months, December 13, 1917 to April 12, 1918 (120 days)

| Ration | Lot 4 | Lot 5 | Lot 7 | Lot 6 |
|--------------------------------------|--|---|--|---|
| | cottonseed meal, corn silage, clover hay, shelled corn | cottonseed meal, corn and soy-bean silage, clover hay, shelled corn | corn silage, clover hay, shelled corn | corn and soy-bean silage, clover hay, shelled corn |
| First month | 2.29 lbs. ¹ | 2.08 lbs. ¹ | 0.72 lbs. ¹ | 0.93 lbs. ¹ |
| Second month | 3.32 " | 3.83 " | 2.98 " | 3.15 " |
| Third month | 1.75 " | 1.37 " | 1.65 " | 2.03 " |
| Fourth month | 2.22 " | 1.94 " | 1.81 " | 1.56 " |
| Total gain per steer | 287.5 lbs. | 276.5 lbs. | 214.9 lbs. | 230.2 lbs. |
| Average daily gain for entire period | 2.40 " | 2.30 " | 1.79 " | 1.92 " |

¹ Cattle badly shrunk due to blizzard January 12, 1918—day of weighing

As was true of all of the lots, the first month's gain was seriously decreased by a blizzard occurring upon the 30-day weighing date. It will be observed that the gains of the cattle in Lot 4, receiving corn silage, were maintained somewhat better than by the cattle in Lot 5, receiving corn and soybean silage. Upon the other hand, Lot 6 receiving corn and soybean silage made superior gains until the last month, to Lot 7 receiving corn silage.

In average daily gains, the cattle fed corn silage in Lot 4 made approximately 4.3 per cent. more rapid gains than the cattle fed corn and soybean silage in Lot 5. In Lot 6, however, the average daily gain was 7.2 per cent. more rapid than in Lot 7.

Table VIII is a statement of the feed required for 100 pounds of gain and the cost of gains.

TABLE VIII.—Average Amount of Feed Consumed and Cost per Hundred Pounds of Gain

| Ration | Lot 4 | Lot 5 | Lot 7 | Lot 6 |
|------------------------------------|--|---|--|---|
| | cottonseed meal, corn silage, clover hay, shelled corn | cottonseed meal, corn and soy-bean silage, clover hay, shelled corn | corn silage, clover hay, shelled corn | corn and soy-bean silage, clover hay, shelled corn |
| Feed per 100 pounds gain | | | | |
| shelled corn | 448 lbs. | 466 lbs. | 650 lbs. | 607 lbs. |
| cottonseed meal | 121 " | 126 " | | |
| corn silage | 1598 " | 1697 " | 2067 " | 1909 " |
| clover hay | 179 " | 196 " | 238 " | 226 " |
| Cost per cwt. of gain | \$20.43 | \$21.48 | \$23.74 | \$22.13 |
| Cost per cwt. of gain ¹ | 24.27 | 25.49 | 29.19 | 27.20 |

¹ Corn at \$1.50 per bushel and corn silage at \$8.50 per ton

As with the gains, the advantage in cost of gains between the cattle in Lots 4 and 5 is favorable to the corn silage while between Lots 6 and 7, the advantage is favorable to the cattle receiving corn and soybean silage.

TABLE IX.—Summary of Part II

| Ration | Lot 4 | Lot 5 | Lot 7 | Lot 6 |
|--|--|--|--|--|
| | cottonseed meal, corn silage, clover hay, shelled corn | cottonseed meal, corn and soy- bean silage, clover hay, shelled corn | corn silage, clover hay, shelled corn | corn and soy- bean silage, clover hay, shelled corn |
| Initial value per cwt. | \$10.15 | \$10.15 | \$10.15 | \$10.15 |
| Initial weight | 10472 lbs. | 10442 lbs. | 10438 lbs. | 10420 lbs. |
| Final weight | 13347 " | 13207 " | 12587 " | 12722 " |
| Total gain | 2875 " | 2765 " | 2149 " | 2302 " |
| Average daily gain | 2.40 " | 2.30 " | 1.79 " | 1.92 " |
| Total feed consumed | | | | |
| shelled corn | 12872 " | 12872 " | 13979 " | 13978.5 " |
| cottonseed meal | 3480 " | 3475 " | | |
| corn silage | 45950 " | 46925 " | 44425 " | 43955 " |
| clover hay | 5160 " | 5415 " | 5120 " | 5195 " |
| Daily feed per steer | | | | |
| shelled corn | 10.73 " | 10.73 " | 11.65 " | 11.65 " |
| cottonseed meal | 2.90 " | 2.90 " | | |
| corn silage | 38.29 " | 39.10 " | 37.02 " | 36.63 " |
| clover hay | 4.30 " | 4.51 " | 4.27 " | 4.33 " |
| Feed per pound gain | | | | |
| shelled corn | 4.48 " | 4.66 " | 6.50 " | 6.07 " |
| cottonseed meal | 1.21 " | 1.26 " | | |
| corn silage | 15.98 " | 16.97 " | 20.67 " | 19.09 " |
| clover hay | 1.79 " | 1.96 " | 2.38 " | 2.26 " |
| Cost of gain per cwt. | \$20.43 | \$21.48 | \$23.74 | \$22.13 |
| Necessary selling price | 12.36 | 12.52 | 12.47 | 12.32 |
| Actual selling price in lots without shrink | 15.35 | 15.25 | 14.65 | 14.35 |
| Profit per steer not including pork | 39.85 | 36.02 | 27.44 | 25.86 |
| Pork produced | 651 lbs. | 574 lbs. | 683 lbs. | 681 lbs. |
| Corn fed to hogs | 1594 " | 1218 " | 1598.5 " | 1598.5 " |
| Shorts fed to hogs | 109 " | 114 " | 114 " | 114 " |
| Tankage fed to hogs | 109 " | 114 " | 114 " | 114 " |
| Profit per steer including pork | \$47.24 | \$42.77 | \$35.34 | \$33.73 |

Feed prices: corn, \$1.12 per bushel; cottonseed meal, \$53.50 per ton; clover hay, \$25.00 per ton, and silage, \$7.50 per ton. Pork at \$17.50 per cwt. Cost of extra feed fed to hogs deducted from value of pork before adding to returns of the cattle

It will be observed that the cattle in Lot 4 could have been sold for 16 cents per hundred pounds less than those in Lot 5 and the financial return would have been the same for each lot. The cattle in Lot 4 were valued at 10 cents per hundred more than those in Lot 5, making a larger profit per steer, without pork, of \$3.83. While the cattle in Lot 7 required a selling price of 15 cents per hundred pounds more than those in Lot 6 to bring the same amount, they actually sold for 30 cents per hundred more, returning an average profit per steer without pork of \$1.58 more than the steers in Lot 6.

The value of the pork produced from the droppings of the cattle in the different lots does not cause any decided change in the relative profits of any of the four lots.

PART III

VALUE OF COTTONSEED MEAL IN RATIONS CONTAINING CORN SILAGE OR CORN AND SOYBEAN SILAGE FOR FATTENING TWO YEAR OLD STEERS

Much work has been done in previous years by this station to determine the value of cottonseed meal as a source of protein for supplementing rations for fattening steers. In conducting the trials reported in Part II, another comparison is available showing the value of cottonseed meal in the rations of corn, silage and clover hay.

Table X shows the average daily consumption of feeds by months and during the entire feeding period.

TABLE X.—Average Amount of Feed Consumed Daily per Head by Months—December 13, 1917 to April 12, 1918 (120 days)

| Ration | Lot 4 | Lot 7 | Lot 5 | Lot 6 |
|---|---|---|--|--|
| | cottonseed meal, corn silage, clover hay, shelled corn | corn silage, clover hay, shelled corn | cottonseed meal, corn and soy- bean silage, clover hay, shelled corn | corn and soy- bean silage, clover hay, shelled corn |
| First month | | | | |
| shelled corn | 8.50 lbs. | 9.19 lbs. | 8.50 lbs. | 9.19 lbs. |
| cottonseed meal | 2.35 " | | 2.33 " | |
| corn silage | 41.77 " | 41.15 " | 41.43 " | 41.15 " |
| clover hay | 4.85 " | 4.35 " | 5.12 " | 4.75 " |
| Second month | | | | |
| shelled corn | 10.41 " | 11.41 " | 10.41 " | 11.41 " |
| cottonseed meal | 2.92 " | | 2.90 " | |
| corn silage | 41.02 " | 38.90 " | 41.32 " | 38.50 " |
| clover hay | 4.70 " | 4.90 " | 4.98 " | 4.93 " |
| Third month | | | | |
| shelled corn | 12.00 " | 13.00 " | 12.00 " | 13.00 " |
| cottonseed meal | 3.10 " | | 3.12 " | |
| corn silage | 37.67 " | 35.00 " | 37.80 " | 33.90 " |
| clover hay | 3.72 " | 3.95 " | 3.95 " | 3.95 " |
| Fourth month | | | | |
| shelled corn | 12.00 " | 13.00 " | 12.00 " | 13.00 " |
| cottonseed meal | 3.25 " | | 3.23 " | |
| corn silage | 32.72 " | 33.03 " | 35.87 " | 32.97 " |
| clover hay | 3.93 " | 3.87 " | 4.00 " | 3.87 " |
| Average daily feed for entire period | | | | |
| shelled corn | 10.73 lbs. | 11.65 lbs. | 10.73 lbs. | 11.65 lbs. |
| cottonseed meal | 2.90 " | | 2.90 " | |
| corn silage | 38.29 " | 37.02 " | 39.10 " | 36.63 " |
| clover hay | 4.30 " | 4.27 " | 4.15 " | 4.33 " |

In these trials, Lots 4 and 7 and Lots 5 and 6 are comparable. Lot 4 received 2.5 pounds of cottonseed meal per 1000 pounds of live weight in addition to the basal ration of shelled corn, corn silage and clover hay. Lot 5 received the same amount of cottonseed meal in addition to the basal ration of shelled corn, corn and soybean silage and clover hay.

The excellent effect of cottonseed meal upon feed consumption was apparent. The cattle in Lots 4 and 5 consumed more concentrates and more roughage daily per steer than those in Lots 7 and 6. Attempts were made to feed the same amount of concentrates in the form of corn to Lots 6 and 7 as was fed in the form of corn and cottonseed meal to Lots 4 and 5. Each time such an attempt was made, the cattle in Lots 6 and 7 seriously decreased their consumption of silage and hay. Even with the consumption of less total daily concentrates, the cattle in the lots not receiving cottonseed meal, refused to consume as much silage as the other cattle.

Table XI gives the average daily gain by months and for the entire period.

TABLE XI.—Average Daily Gain by Months—December 13, 1917 to April 12, 1918 (120 days)

| Ration | Lot 4 | Lot 7 | Lot 5 | Lot 6 |
|--------------------------------------|---|---|--|--|
| | cottonseed meal, corn silage, clover hay, shelled corn | corn silage, clover hay, shelled corn | cottonseed meal, corn and soy- bean silage, clover hay, shelled corn | corn and soy- bean silage, clover hay, shelled corn |
| First month | 2.29 lbs. ¹ | 0.72 lbs. ¹ | 2.08 lbs. ¹ | 0.93 lbs. ¹ |
| Second month | 3.32 “ | 2.98 “ | 3.83 “ | 3.15 “ |
| Third month | 1.75 “ | 1.65 “ | 1.37 “ | 2.03 “ |
| Fourth month | 2.22 “ | 1.81 “ | 1.94 “ | 1.56 “ |
| Total gain per steer | 287.5 lbs. | 214.9 lbs. | 276.5 lbs. | 230.2 lbs. |
| Average daily gain for entire period | 2.40 “ | 1.79 “ | 2.30 “ | 1.92 “ |

¹ Cattle badly shrunk due to blizzard January 12, 1918—day of weighing

The addition of cottonseed meal increased the average daily gain in Lots 4 and 5, both by months and as an average for the entire period. As an average throughout the entire period, the cattle in Lot 4 gained 34 per cent. more rapidly than those in Lot 7. In Lot 5, the cattle made an increased average daily gain of 19.8 per cent. over that of the cattle in Lot 6.

Table XII shows the feed requirements per hundred pounds of gain and the attending cost.

TABLE XII.—Average Amount of Feed Consumed and Cost per Hundred Pounds of Gain

| Ration | Lot 4 | Lot 7 | Lot 5 | Lot 6 |
|------------------------------------|---|---|--|--|
| | cottonseed meal, corn silage, clover hay, shelled corn | corn silage, clover hay, shelled corn | cottonseed meal, corn and soy- bean silage, clover hay, shelled corn | corn and soy- bean silage, clover hay, shelled corn |
| Feed per 100 pounds gain | | | | |
| shelled corn | 448 lbs. | 650 lbs. | 466 lbs. | 607 lbs. |
| cottonseed meal | 121 “ | | 126 “ | |
| corn silage | 1598 “ | 2067 “ | 1697 “ | 1909 “ |
| clover hay | 179 “ | 238 “ | 196 “ | 226 “ |
| Cost per cwt. of gain | \$20.43 | \$23.74 | \$21.48 | \$22.13 |
| Cost per cwt. of gain ¹ | 24.27 | 29.19 | 25.49 | 27.20 |

¹ Corn at \$1.50 per bushel and corn silage at \$8.50 per ton

Where no cottonseed meal was used in Lot 7, the cost of production of 100 pounds of beef was increased \$3.31 or 3.3 cents per pound above Lot 4. In Lot 6, the increased cost over Lot 5 was 65 cents per hundred pounds of gain. Even at the high price of \$53.50 per ton, cottonseed meal effects a considerable saving in feeding two year old steers.

The figures in Table XIII give the summary of the four lots.

TABLE XIII.—Summary of Part III

| Ration | Lot 4 | Lot 7 | Lot 5 | Lot 6 |
|--|---|---|--|--|
| | cottonseed meal, corn silage, clover hay, shelled corn | corn silage, clover hay, shelled corn | cottonseed meal, corn and soy-bean silage, clover hay, shelled corn | corn and soy-bean silage, clover hay, shelled corn |
| Initial value per cwt. | \$10.15 | \$10.15 | \$10.15 | \$10.15 |
| Initial weight | 10472 lbs. | 10438 lbs. | 10442 lbs. | 10420 lbs. |
| Final weight | 13347 " | 12587 " | 13207 " | 12722 " |
| Total gain | 2875 " | 2149 " | 2765 " | 2302 " |
| Average daily gain | 2.40 " | 1.79 " | 2.30 " | 1.92 " |
| Total feed consumed | | | | |
| shelled corn | 12872 " | 13979 " | 12872 " | 13978.5 " |
| cottonseed meal | 3480 " | | 3475 " | |
| corn silage | 45950 " | 44425 " | 46925 " | 43955 " |
| clover hay | 5160 " | 5120 " | 5415 " | 5195 " |
| Daily feed per steer | | | | |
| shelled corn | 10.73 " | 11.65 " | 10.73 " | 11.65 " |
| cottonseed meal | 2.90 " | | 2.90 " | |
| corn silage | 38.29 " | 37.02 " | 39.10 " | 36.63 " |
| clover hay | 4.30 " | 4.27 " | 4.51 " | 4.33 " |
| Feed per pound gain | | | | |
| shelled corn | 4.48 " | 6.50 " | 4.66 " | 6.07 " |
| cottonseed meal | 1.21 " | | 1.26 " | |
| corn silage | 15.98 " | 20.67 " | 16.97 " | 19.09 " |
| clover hay | 1.79 " | 2.38 " | 1.96 " | 2.26 " |
| Cost of gain per cwt. | \$20.43 | \$23.74 | \$21.48 | \$22.13 |
| Necessary selling price | 12.36 | 12.47 | 12.52 | 12.32 |
| Actual selling price in lots without shrink | 15.35 | 14.65 | 15.25 | 14.35 |
| Profit per steer not including pork | 39.85 | 27.44 | 36.02 | 25.86 |
| Pork produced | 651 lbs. | 683 lbs. | 574 lbs. | 681 lbs. |
| Corn fed to hogs | 1594 " | 1598.5 " | 1218 " | 1598.5 " |
| Shorts fed to hogs | 109 " | 114 " | 114 " | 114 " |
| Tankage fed to hogs | 109 " | 114 " | 114 " | 114 " |
| Profit per steer including pork | \$47.24 | \$35.34 | \$42.77 | \$33.73 |

There is a difference between the necessary selling price of the cattle in Lots 4 and 7 of 11 cents per hundred pounds in favor of Lot 4. There was an actual difference of 70 cents per hundred in the valuations of the two lots. This increased valuation for the cattle of Lot 4, together with the superior and cheaper gains, caused an increase in profit per steer without pork in Lot 4 over Lot 7 of \$12.41, due to the effect of adding cottonseed meal to the basal ration of corn, corn silage and clover hay.

In Lot 5, the necessary selling price was 20 cents per hundred pounds more than in Lot 6. However, these cattle were valued at \$15.25 or 90 cents per hundred pounds more than the cattle in Lot 6. The increase in the profit per steer without pork caused by the addition of cottonseed meal to corn, corn and soybean silage and clover hay, was \$10.16.

The hogs in Lots 4 and 5 did not gain quite as rapidly as those in Lots 6 and 7. These differences in production of pork caused no change in the relative total profits of Lots 4 and 7 but deducted \$1.12 per steer from the increase in profits per steer in Lot 5 as compared with Lot 6.

It may be stated that cottonseed meal when added to rations of corn, corn silage and clover hay or corn, corn and soybean silage and clover hay will 1—increase feed consumption, both concentrates and roughage; 2—increase the rate of gain; 3—decrease the cost of production; and 4—through a better finish, increase the selling price of the cattle. The total result of the four advantages means increased profits in the feed lot.

FINANCIAL STATEMENT

Lot 1.—Ten Steers Fed Cottonseed Meal, Corn Silage, Clover Hay and Shelled Corn for the Last 40 Days, 1917-18

| | |
|---|------------------|
| Dec. 13, To 10 steers, weight 10500 lbs. @ \$10.15 per cwt..... | \$1065.75 |
| Dec. 13-April 12, To 3355 lbs. cottonseed meal @ \$53.50 per ton..... | 89.75 |
| Dec. 13-April 12, To 56830 lbs. corn silage @ \$7.50 per ton..... | 213.11 |
| Dec. 13-April 12, To 4795 lbs. clover hay @ \$25.00 per ton..... | 59.94 |
| Mar. 3-April 12, To 4979 lbs. shelled corn @ \$1.12 per bu..... | 99.58 |
| Total expenditures | \$1528.13 |
| April 12, By 10 steers, 12622 lbs. @ \$14.85 per cwt..... | 1874.37 |
| Total profit without pork..... | 346.24 |
| Profit per steer without pork..... | 34.62 |
| Dec. 13 to April 12, To 753 lbs. shelled corn @ \$1.12 per bu..... | \$ 15.06 |
| By 265 lbs. pork @ \$17.50 per cwt..... | 46.73 |
| Value of pork produced from droppings | \$ 31.67 |
| Total receipts including pork..... | 1906.04 |
| Total profits including pork..... | 377.91 |
| Profit per steer including pork..... | 37.79 |
| Price per bushel corn fed to cattle..... | 5.37 |

Lot 2.—Ten Steers Fed Cottonseed Meal, Corn Silage and Clover Hay, 1917-18

| | |
|---|------------------|
| Dec. 13, To 10 steers, weight 10497 lbs. @ \$10.15 per cwt..... | \$1065.45 |
| Dec. 13-April 12, To 3365 lbs. cottonseed meal @ \$53.50 per ton..... | 90.01 |
| Dec. 13-April 12, To 65110 lbs. corn silage @ \$7.50 per ton..... | 244.16 |
| Dec. 13-April 12, To 5000 lbs. clover hay @ \$25.00 per ton..... | 62.50 |
| Total expenditures | \$1462.12 |
| April 12, By 10 steers, weight 12492 lbs. @ \$14.55 per cwt..... | 1817.59 |
| Total profit without pork | 355.47 |
| Profit per steer without pork..... | 35.55 |
| Dec. 13-April 12, To 831 lbs. shelled corn @ \$1.12 per bu..... | \$ 16.62 |
| By 198 lbs. pork @ \$17.50 per cwt..... | 34.65 |
| Value of pork produced from droppings | \$ 18.03 |
| Total receipts including pork..... | 1835.62 |
| Total profit including pork..... | 373.50 |
| Profit per steer including pork..... | 37.35 |

FINANCIAL STATEMENT—Continued

Lot 3.—Nine Steers Fed Cottonseed Meal, Corn Silage, Clover Hay and One-half Feed of Shelled Corn, 1917-18

| | | |
|-------------------|--|-----------|
| Dec. 13, | To 9 steers, weight 9418 lbs. @ \$10.15 per cwt..... | \$ 955.93 |
| Dec. 13-April 12, | To 5856 lbs. shelled corn @ \$1.12 per bu..... | 117.12 |
| Dec. 13-April 12, | To 3062 lbs. cottonseed meal @ \$53.50 per ton..... | 81.91 |
| Dec. 13-April 12, | To 49242 lbs. corn silage @ \$7.50 per ton..... | 184.66 |
| Dec. 13-April 12, | To 5005 lbs. clover hay @ \$25.00 per ton..... | 62.56 |

| | |
|---|-----------|
| Total expenditures | \$1402.18 |
| April 12, By 9 steers, weight 11435 lbs. @ \$14.85 per cwt..... | 1698.10 |
| Total profit without pork..... | 295.92 |
| Profit per steer without pork..... | 32.88 |
| Dec. 13-April 12, | |
| To 758 lbs. shelled corn @ \$1.12 per bu..... | \$ 15.16 |
| By 322 lbs. of pork @ \$17.50 per cwt..... | 56.35 |

| | |
|---|----------|
| Value of pork produced from droppings | \$ 41.19 |
| Total receipts including pork..... | 1739.29 |
| Total profit including pork..... | 337.11 |
| Profit per steer including pork..... | 37.46 |
| Price received per bushel of corn fed cattle..... | 4.344 |

Lot 4.—Ten Steers Fed Cottonseed Meal, Corn Silage, Clover Hay, and Shelled Corn, 1917-18

| | | |
|-------------------|--|-----------|
| Dec. 13, | To 10 steers, weight 10472 lbs. @ \$10.15 per cwt..... | \$1062.91 |
| Dec. 13-April 12, | To 12872 lbs. shelled corn @ \$1.12 per bu..... | 257.44 |
| Dec. 13-April 12, | To 3480 lbs. cottonseed meal @ 53.50 per ton..... | 93.09 |
| Dec. 13-April 12, | To 45950 lbs. corn silage @ \$7.50 per ton..... | 172.31 |
| Dec. 13-April 12, | To 5160 lbs. clover hay @ \$25.00 per ton..... | 64.50 |

| | |
|--|-----------|
| Total expenditures | \$1650.25 |
| April 12, By 10 steers, weight 13347 lbs. @ \$15.35 per cwt..... | 2048.76 |
| Total profit without pork..... | 398.51 |
| Profit per steer without pork..... | 39.85 |
| Dec. 13-April 12, | |
| To 1594 lbs. shelled corn @ \$1.12 per bu..... | \$ 31.88 |
| To 109 lbs. tankage @ \$100.00 per ton..... | 5.45 |
| To 109 lbs. shorts @ \$50.00 per ton..... | 2.73 |

| | |
|---|--------|
| Total cost of extra feed for hogs..... | 40.06 |
| By 651 lbs. pork @ \$17.50 per cwt..... | 113.93 |

| | |
|---|----------|
| Value of pork produced from droppings..... | \$ 73.87 |
| Total receipts including pork..... | 2122.63 |
| Total profit including pork..... | 472.38 |
| Profit per steer including pork..... | 47.24 |
| Price received per bushel of corn fed cattle..... | 3.175 |

FINANCIAL STATEMENT—Continued

Lot 5.—Ten Steers Fed Cottonseed Meal, Corn and Soybean Silage,
Clover Hay and Shelled Corn, 1917-18

| | | |
|--|--|-----------|
| Dec. 13, | To 10 steers, weight 10442 lbs. @ \$10.15 per cwt..... | \$1059.86 |
| Dec. 13—April 12, | To 12872 lbs. shelled corn @ \$1.12 per bu..... | 257.44 |
| Dec. 13—April 12, | To 3475 lbs. cottonseed meal @ \$53.50 per ton..... | 92.96 |
| Dec. 13—April 12, | To 46925 lbs. corn and soybean silage @ \$7.50 per ton..... | 175.97 |
| Dec. 13—April 12, | To 5415 lbs. clover hay @ \$25.00 per ton..... | 67.69 |
| Total expenditures | | \$1653.92 |
| April 12, | By 10 steers, weight 13207 lbs. @ \$15.25 per cwt..... | 2014.07 |
| Total profit without pork..... | | 360.15 |
| Profit per steer without pork..... | | 36.02 |
| Dec. 13—April 12, | | |
| | To 1218 lbs. shelled corn @ \$1.12 per bu..... | \$ 24.36 |
| | To 114 lbs. tankage @ \$100.00 per ton..... | 5.70 |
| | To 114 lbs. shorts @ \$50.00 per ton..... | 2.85 |
| Total cost of extra feed for hogs..... | | 32.91 |
| By | 574 lbs. pork @ \$17.50 per cwt..... | 100.45 |

| | |
|---|----------|
| Value of pork produced from droppings..... | \$ 67.54 |
| Total receipts including pork..... | 2081.61 |
| Total profits including pork..... | 427.69 |
| Profit per steer including pork..... | 42.77 |
| Price received per bushel of corn fed cattle..... | 2.981 |

Lot 6.—Ten Steers Fed Corn and Soybean Silage, Clover Hay and
Shelled Corn, 1917-18

| | | |
|--|--|-----------|
| Dec. 13, | To 10 steers, weight 10420 lbs. @ \$10.15 per cwt..... | \$1057.63 |
| Dec. 13—April 12, | To 13978.5 lbs. shelled corn @ \$1.12 per bu..... | 279.57 |
| Dec. 13—April 12, | To 43955 lbs. corn and soybean silage @ \$7.50 per ton..... | 164.83 |
| Dec. 13—April 12, | To 5195 lbs. clover hay @ \$25.00 per ton..... | 64.94 |
| Total expenditures | | \$1566.97 |
| April 12, | By 10 steers, weight 12722 lbs. @ \$14.35 per cwt..... | 1825.61 |
| Total profit without pork..... | | 258.64 |
| Profit per steer without pork..... | | 25.86 |
| Dec. 13—April 12, | | |
| | To 1598.5 lbs. shelled corn @ \$1.12 per bu..... | \$ 31.97 |
| | To 114 lbs. tankage @ \$100.00 per ton..... | 5.70 |
| | To 114 lbs. shorts @ \$50.00 per ton..... | 2.85 |
| Total cost of extra feed for hogs..... | | 40.52 |
| By | 681 lbs. pork @ \$17.50 per cwt..... | 119.18 |

| | |
|--|----------|
| Value of pork produced from droppings..... | \$ 78.66 |
| Total receipts including pork..... | 1904.27 |
| Total profit including pork..... | 337.30 |
| Profit per steer including pork..... | 33.73 |
| Price received per bushel of corn fed to cattle..... | 2.471 |

FINANCIAL STATEMENT—Continued

Lot 7.—Ten Steers Fed Corn Silage, Clover Hay, and Shelled Corn,
1917-18

| | | |
|--|--|-----------|
| Dec. 13, | To 10 steers, weight 10438 lbs. @ \$10.15 per cwt..... | \$1059.46 |
| Dec. 13-April 12, | To 13979 lbs. shelled corn @ \$1.12 per bu..... | 279.58 |
| Dec. 13-April 12, | To 44425 lbs. corn silage @ \$7.50 per ton..... | 166.59 |
| Dec. 13-April 12, | To 5120 lbs. clover hay @ \$25.00 per ton..... | 64.00 |
| Total expenditures | | \$1569.63 |
| April 12, | By 10 steers, weight 12587 lbs. @ \$14.65 per cwt..... | 1844.00 |
| Total profit without pork..... | | 274.37 |
| Profit per steer without pork..... | | 27.44 |
| Dec. 13-April 12, | | |
| | To 1598.5 lbs. shelled corn @ \$1.12 per bu..... | \$ 31.97 |
| | To 114 lbs. tankage @ \$100.00 per ton..... | 5.70 |
| | To 114 lbs. shorts @ \$50.00 per ton..... | 2.85 |
| Total cost of extra feed for hogs..... | | 40.52 |
| By 683 pounds of pork @ \$17.50 per cwt..... | | \$119.53 |
| Value of pork produced from droppings..... | | \$ 79.01 |
| Total receipts including pork..... | | \$1923.01 |
| Total profit including pork..... | | 353.38 |
| Profit per steer including pork..... | | 35.34 |
| Price received per bushel of corn fed to cattle..... | | 2.535 |

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SEPTEMBER, 1918



SHEEP FEEDING VIII

FATTENING WESTERN LAMBS 1917-1918

- Part I. Corn Silage Alone vs. Corn Silage and Varying Amounts of Dry Roughage
- Part II. Comparison of Protein Supplements
- Part III. Hominy Feed vs. Shelled Corn
- Part IV. Partial vs. Continuous Grain Feeding
- Part V. Influence of Shearing

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FATTENING WESTERN LAMBS

1917-1918

J. H. SKINNER

C. G. STARR

SUMMARY

PART I

CORN SILAGE ALONE VS. CORN SILAGE AND VARYING AMOUNTS OF DRY ROUGHAGE

Lambs receiving corn silage alone as roughage did not consume as much dry matter as lambs receiving clover hay in addition to corn silage as roughage.

Lambs fed corn silage, and clover hay nights and mornings gained 22 per cent. more rapidly than lambs fed silage alone as roughage and 8.0 per cent. more rapidly than lambs fed corn silage, and clover hay every fifth day.

Lambs fed clover hay every fifth day in addition to corn silage gained 13 per cent. more rapidly than lambs fed corn silage alone as roughage.

Lambs fed corn silage alone as roughage required an expenditure for feed of \$14.38 per hundred pounds of gain, those fed clover hay once every fifth day in addition to corn silage required an expenditure of \$13.19 and those receiving clover hay nights and mornings in addition to corn silage, required an expenditure of \$13.18 per hundred pounds of gain.

The lambs fed silage alone were valued at \$16.90 per hundred pounds and returned a loss of 40 cents per lamb. The lambs receiving clover hay once every fifth day in addition to corn silage, were valued at \$16.85 and returned a loss of 10 cents per head. The lambs receiving clover hay nights and mornings in addition to corn silage as roughage, were valued at \$17.00 per hundred pounds and returned a profit of 10 cents per lamb.

PART II

COMPARISON OF PROTEIN SUPPLEMENTS

There was practically no difference in the average gain per lamb in any of the lots receiving different protein concentrates as supplements.

The lambs fed linseed oil meal consumed an average daily feed of 3.26 pounds, the lambs receiving cottonseed meal, 3.28 pounds and the lambs fed ground soybeans, 3.29 pounds per lamb.

The lambs receiving linseed oil meal required 389 pounds of concentrates and 764 pounds of roughage per hundred pounds of gain, costing \$13.22. The lambs fed cottonseed meal required for the same amount of gain, 393 pounds of concentrates and 776 pounds of roughage at a cost of \$13.18. The lambs fed ground soybeans required 393 pounds of concentrates and 781 pounds of roughage per hundred pounds of gain at a cost of \$13.41.

The lambs fed linseed oil meal were valued at \$17.25 per hundred pounds and returned a net profit of 29 cents per head, the lambs receiving cottonseed meal were valued at \$17.00 and returned a net profit of 10 cents; the lambs fed ground soybeans were valued at \$17.00 and returned a net profit of three cents per lamb.

PART III

HOMINY FEED VS. SHELLED CORN

Each lot of lambs gained exactly the same amount in weight.

The daily consumption of concentrates and corn silage was slightly lower with lambs fed hominy feed.

For 100 pounds of increase in live weight, 388 pounds of concentrates and 747 pounds of roughage, costing \$12.99, were required with lambs fed hominy feed. For the same gain with the lambs fed shelled corn, 393 pounds of concentrates and 776 pounds of roughage, costing \$13.18, were required.

The lambs receiving hominy feed were valued at \$17.10 and returned a net profit per head of 23 cents. The lambs fed shelled corn were valued at \$17.00 and returned a net profit of 10 cents per head.

PART IV

PARTIAL VS. CONTINUOUS GRAIN FEEDING

The lambs fed without corn for the first 40 days made a total gain approximately the same as lambs fed grain from the beginning of the feeding period.

The lambs receiving a partial feed of corn consumed 15 per cent. more of the comparatively cheaper feeds as corn silage and clover hay than those receiving corn throughout the feeding period.

As an average for the 90-day feeding period, the lambs fed a partial feed of corn consumed a daily feed per lamb of 3.42 pounds. The lambs fed corn continuously consumed an average feed of 3.28 pounds per day.

For the production of 100 pounds of mutton, the lambs receiving a partial feed of corn required 326 pounds of concentrates and 903 pounds of roughage, costing \$12.81; for the lambs fed corn continuously, 393 pounds of concentrates and 776 pounds of roughage costing \$13.18 were required.

The lambs fed corn during a part of the feeding period were valued at \$16.85 per hundred pounds and returned an average profit of six cents per head. The lambs receiving corn continuously were valued at \$17.00 per hundred pounds and returned a net profit of 10 cents per head.

PART V

INFLUENCE OF SHEARING

The shorn lambs gained only 0.182 pounds daily per lamb during the month in which they were shorn, while the woolled lambs gained 0.301 pounds daily per lamb during the same period.

As an average of the entire feeding period of 90 days, the shorn lambs gained approximately only 85 per cent. as rapidly as the woolled lambs.

The average clip per lamb was 3.14 pounds of short stapled wool and sold for 50 cents per pound.

The feed required per hundred pounds of gain in the shorn lot was 464 pounds of concentrates and 897 pounds of roughage at a cost of

\$15.52; in the wooled lot, 393 pounds of concentrates and 776 pounds of roughage, costing \$13.18 were required per hundred pounds of gain.

The shorn lambs were valued at \$14.75 per hundred pounds with a loss of \$1.19 per lamb. The wooled lambs were valued at \$17.00 per hundred pounds and returned a profit of 10 cents per head.

INTRODUCTION

The feeders of western lambs and sheep in the corn belt states suffered a series of misfortunes during the winter of 1917-18. The profits received from feeding sheep the last few years induced many new men to change from cattle feeding to sheep feeding. The profits realized by sheepmen who fed during the winter of 1916-17, buying their feeders at the highest prices on record up to that time, especially had a very great influence upon the increased demand for feeding sheep and lambs in the fall of 1917. The increased demand occasioned a continuous rise in prices until at different livestock markets for feeding sheep and lambs, the prices paid were the highest on record.

After the feeder had purchased his stock, he found that the prices of feeds were also the highest that have ever been demanded or paid. The bulk of the corn used in feeding was high in moisture content and consequently lower in feeding value than in average years. The prices of protein concentrates and hay had been advanced to extremely high levels. With the extremely high prices of feeds, the cost of producing mutton was the highest that had ever been encountered in the Corn Belt.

Sheep feeders found a very unsatisfactory market when the lambs or sheep were ready to sell. The buyers discriminated very sharply against lambs that came to market weighing over 80 pounds. The demand for mutton was not keen and many feeders were forced to accept prices that were often a dollar or more per hundred pounds less than the purchase price.

These conditions were encountered by this station in feeding and marketing lambs fed in 1917-18. For the first time since lambs have been fed at this station they were fed with a lack of margin and at an excessive cost of production. Under these conditions, no financial profit could be expected in the lamb feeding experimental work herein reported.

OBJECT

The object of the experimental lamb feeding trials at the Purdue University Agricultural Experiment Station conducted during the fall and winter of 1917-18 was to obtain additional information on the comparative feeding value of different concentrated feeds and the different systems of feeding and management. The detailed objects were as follows: 1—a comparison of the value of corn silage as sole roughage and in combination with clover hay, the hay either fed once every fifth day or fed twice daily; 2—a comparison of cottonseed meal, linseed oil meal and ground soybeans as protein concentrates for supplements; 3—a comparison of the relative feeding value of hominy feed and shelled corn; 4—a comparison of a system of feeding in which no corn was fed in the first part of the feeding period, and one in which corn was fed from the

beginning of the feeding period; 5—a comparison of a system in which the lambs were clipped shortly before marketing, and one in which the lambs were not clipped.

PLAN

The plan of the work was to secure strong, vigorous western feeding lambs in sufficient numbers to allow the discarding of any cull lambs in order to have a flock as nearly uniform as possible. The flock was divided into eight lots of 25 lambs each. All eight lots were as nearly uniform as possible as to size, condition, quality, thrift, sex and breeding.

The following rations were fed:

Lot 1. Shelled corn, cottonseed meal and corn silage.

Lot 2. Shelled corn, cottonseed meal, corn silage and clover hay. (lambs shorn two weeks before they went to market.)

Lot 3. Hominy feed, cottonseed meal, corn silage and clover hay.

Lot 4. Cottonseed meal, corn silage, clover hay, shelled corn (fed last 50 days).

Lot 5. Shelled corn, linseed oil meal, corn silage and clover hay.

Lot 6. Shelled corn, cottonseed meal, corn silage and one feed of clover hay every fifth day.

Lot 7. Shelled corn, cottonseed meal, corn silage and clover hay.

Lot 8. Shelled corn, ground soybeans, corn silage and clover hay.

In Lot 4, the cottonseed meal was fixed at 0.25 pound per lamb daily. In other lots, the protein concentrate was fed in the proportion of one part to seven parts of corn or hominy meal.

SHELTER, FEEDING YARDS AND WATER SUPPLY

The lambs were all housed in a shed, open to the south. This shed is a part of the experimental feeding plant at this station. Each lot of 25 lambs occupied a shed 14 by 16 feet open on the south side and an uncovered lot 14 by 14 feet. No pavement of any kind was used in the shed or lot. A few times during the feeding period, the blowing in of large quantities of snow necessitated the bedding of the covered lots with wheat straw but no bedding was used in the open lots.

Water was supplied to each lot of lambs from the city water service regularly twice daily mornings and nights in galvanized iron tubs, which were emptied and cleaned at least once daily. During the extremely cold weather, the tubs were emptied shortly after each feeding to prevent the water freezing in them.

WEIGHTS

Individual weights were taken of each lamb for three consecutive days at the beginning and end of the trial and also every thirtieth day during the trial. The average of the three consecutive weights at the beginning and end of the trial was used as the initial and final weights. In addition, the lots were weighed in groups every tenth day during the feeding period. The identity of each lamb was known by a numbered aluminum tag fastened in the ear. All weights were taken after the lambs had finished eating in the morning.

METHOD OF FEEDING

All grain and concentrates with the exception of the cottonseed meal in Lot 4, were fed in narrow flat-bottomed grain troughs. The grain was fed at approximately 6:00 a. m. and 4:30 p. m. After the lambs had consumed the concentrates, the corn silage was fed; shortly after, the lots receiving hay were fed hay placed in hay racks.

The cottonseed meal, ground soybeans and linseed oil meal with the exception of Lot 4, were mixed thoroughly with the grain. In Lot 4, the cottonseed was mixed with the silage, since for a considerable time, this lot received no grain.

When starting the lambs on grain, oats were used to accustom the lambs to a grain ration. At the beginning of the feeding period, considerable difficulty was experienced in securing shelled corn of the 1917 crop and more oats were used in this trial than in former trials. After the lambs were eating oats, shelled corn was added gradually. All oats were withdrawn after a short time and the protein concentrates were also gradually introduced. In three weeks, the lambs were consuming the desired amount of grain.

Throughout the feeding, corn silage was fed in such amounts as was readily consumed within a reasonable time. The amount of hay fed was governed by the appetites of the lambs. Any feed refused by the lambs was weighed and such amount was deducted from the amount fed. In cases where the feed was refused, the amount was reduced at the next feed.

DESCRIPTION OF LAMBS

The lambs used in this trial were choice light weight lambs, purchased on the Chicago live stock market, October 17, 1917. Two hundred and twenty-five lambs were purchased. They were largely of Hampshire-Merino crosses and were bred and grown in Idaho. When purchased, the flock was fairly uniform in size and condition. Owing to general weather conditions and comparative safety from scab exposure, the lambs were not dipped. On October 27, eight lots of 25 lambs each, were selected for experimental feeding. The total cost, including buying and shipping charges, of the lambs when placed on experimental rations was \$18.55 per hundred pounds.

METHOD OF VALUING THE LAMBS

The initial cost of the lambs at the beginning of the trial (\$18.55) was taken as the initial value. Final values were placed upon the different lots at the close of the experiment by Chas. H. Shurte, of the Knollin Commission Company, Chicago, Ill. The final values as reported in this bulletin are on the basis of the Chicago prices fixed by Mr. Shurte, less 75 cents per hundred to cover cost of shipping. All financial statements are based upon these prices.

FEEDS AND PRICES

The rations fed were composed of various combinations of shelled corn, hominy meal, cottonseed meal, linseed oil meal, ground soybeans, corn silage and clover hay.

The oats used in getting the lambs on feed were of excellent quality and of the 1917 crop; also the corn used was of the 1917 crop; the cottonseed meal used was choice and of the 41 per cent. protein grade. The linseed oil meal was also choice and was guaranteed 34 per cent. protein. The soybeans were coarsely ground and of excellent quality grown on the University Farm in 1917. The hominy feed used was the by-product of the 1916 crop of corn and was an excellent grade of feed. The corn silage was made from a field that would yield approximately 30 bushels of corn per acre and put into the silo somewhat green, owing to danger of frosts. When fed, it was of good appearance, quality and odor. No difficulty was experienced in the lambs consuming the silage. The clover hay was choice; a portion of it contained a small amount of timothy but was consumed eagerly by the lambs.

Owing to a lack of market for corn of the 1917 crop in LaFayette for a considerable portion of the feeding period, and to a very wide range in prices paid when a market was opened, the price for corn fed in the trial could not be based upon the average market price as formerly had been the custom. The fixed price of \$1.12 per bushel has been used in making financial statements. It is thought that this price is reasonable for the period of time from October 28 to January 26. The oats were valued at 70 cents per bushel and the cottonseed meal used cost \$53.50 per ton delivered at LaFayette. Linseed oil meal was purchased at \$60.00 per ton and the same price was placed upon ground soybeans and hominy feed. The corn silage was valued at \$7.50 per ton and the clover hay at \$25.00 per ton. All financial statements are based upon the principle that the value of the manure produced during the trial offsets the labor of feeding and cost of bedding.

PART I

CORN SILAGE ALONE VS. CORN SILAGE AND VARYING AMOUNTS OF DRY ROUGHAGE

Previous trials at this station have shown that lambs receiving no other roughage than corn silage have not fed as well as those receiving dry roughage in addition to the corn silage. The lambs have sooner or later developed unsteady appetites and have refused to consume normal quantities of feed. In these previous trials, it has been demonstrated that when the lambs went off feed, a feed of clover hay has caused a change for the better in the appetites. It was felt that if by the addition of an occasional feed of clover hay, the appetites of the lambs could be maintained, a very economical rate of gain could be established. In Bulletin No. 202, "Sheep Feeding, VII—Fattening Western Lambs," the results of the first trial in feeding one feed of clover hay every fifth day as compared with no hay, and a continuous hay ration, are discussed.

The results of the second trial are given in this bulletin.

Three lots of 25 lambs were fed a basal concentrated ration of seven parts of shelled corn and one part of cottonseed meal. Lot 1 received corn silage as the sole roughage. Lot 6 received the same ration except that once every fifth day a feed of clover hay was substituted for a feed of corn silage. Lot 7 received corn silage and clover hay daily, morning and night.

Owing to inability to place the lambs immediately upon a sole silage ration, a small amount of clover hay was fed to Lots 1 and 6 for a short time after the experimental feeding was begun. All hay was withdrawn from Lot 1 by the twenty-first day of the feeding period when the lambs were on full feed. The hay fed to the lambs in Lot 6 every fifth day was governed by their appetites, the amount varying from 18 to 25 pounds. The corn silage was fed in all lots according to the appetites of the lambs. The maximum consumption of silage daily per lot in Lot 1 was 60 pounds, in Lot 6, 62 pounds, and 44 pounds in Lot 7.

After the first 20 days, the amount of corn fed daily per lot was 24 pounds until the end of the second month of the feeding period, at which time, the amount of shelled corn was advanced to 28 pounds daily. Two weeks before the close of the feeding trial the corn was again advanced to 32 pounds daily per lot. The lambs in all lots consumed these amounts of corn readily. As the amount of corn was increased, the amount of cottonseed meal was also increased in the proportion of one part to seven parts of corn. The amount of hay fed to Lot 7 averaged approximately 16 pounds per lot daily.

TABLE I.—Corn Silage vs. Corn Silage and Dry Roughage for Fattening Lambs—October 28, 1917, to January 26, 1918

| Ration | Lot 1 | Lot 6 | Lot 7 |
|-------------------------------------|---|--|---|
| | shelled corn, cottonseed meal, corn silage, | shelled corn, cottonseed meal, corn silage, (clover hay every fifth day) | shelled corn, cottonseed meal, corn silage, clover hay |
| Average initial weight | 56.0 lbs. | 56.0 lbs. | 55.9 lbs. |
| Average final weight | 76.8 " | 79.4 " | 81.2 " |
| Average gain per lamb | 20.8 " | 23.4 " | 25.3 " |
| Average daily gain | 0.231 " | 0.26 " | 0.281 " |
| Average daily feed per lamb | | | |
| concentrates | 1.10 " | 1.10 " | 1.10 " |
| clover hay | 0.20 " | 0.32 " | 0.64 " |
| corn silage | 1.98 " | 1.86 " | 1.54 " |
| Feed per 100 pounds gain | | | |
| concentrates | 478.0 " | 425.0 " | 393.0 " |
| clover hay | 86.0 " | 124.0 " | 228.0 " |
| corn silage | 859.0 " | 715.0 " | 548.0 " |
| Cost per 100 pounds gain | \$14.38 | \$13.19 | \$13.18 |
| Selling value of lambs in feed lots | 16.90 | 16.85 | 17.00 |
| Profit or loss per lamb | -0.40 | -0.10 | +0.10 |

— indicates loss

+ indicates profit

It will be noted in Table I that the lambs in all three lots consumed 3.28 pounds as an average daily feed. When the dry matter content of the feeds is considered, however, it is apparent that the lambs in the lots receiving dry roughage consumed more food nutrients daily than the

lambs not receiving clover hay. During the last period of the 90-day trial, the lambs in Lot 1 began to decrease their consumption of corn silage slightly. The consumption of concentrates was the same in all lots.

The lambs receiving silage alone as roughage made an average gain of 20.8 pounds per lamb, the lambs receiving clover hay every fifth day in addition to corn silage made an average gain of 23.4 pounds; the lambs receiving clover hay morning and night in addition to corn silage made an average gain of 25.3 pounds. The average daily gain per lamb in Lot 1, was 0.231 pound; in Lot 6, 0.26 pound; and in Lot 7, 0.281 pound. The total amount of feed required per pound of gain was proportional to the average daily gain, the most rapid gain requiring the least amount of feed. The concentrate requirement for 100 pounds of gain in Lot 7 was 393 pounds, in Lot 6, 425 pounds, and in Lot 1, 478 pounds. The feeding of the maximum amount of corn silage in Lot 1 as compared with lesser amounts in Lots 6 and 7, did not apparently result in any reduction in either the amount of corn or cottonseed meal required for 100 pounds of gain. The roughage required per 100 pounds of gain in Lot 7 was 776 pounds, in Lot 6, 839 pounds and in Lot 1, 945 pounds.

At the prevailing prices of feeds, the cost per hundred pounds of gain in Lot 1 was \$14.38, in Lot 6, \$13.19, and in Lot 7, \$13.18. The lambs in Lot 1 were valued at \$16.90, in Lot 6 at \$16.85, and \$17.00 in Lot 7 per hundred pounds. The lambs receiving corn silage alone showed a loss of 40 cents per lamb. The lambs receiving one feed of clover hay every fifth day showed a loss of 10 cents per head. The lambs receiving clover hay mornings and nights in addition to corn silage made a profit of 10 cents per head.

PART II

COMPARISON OF PROTEIN SUPPLEMENTS

For two years previous to this trial at this station, ground soybeans have been compared with cottonseed meal as protein supplement in lamb feeding rations. The trial reported herein is the third of the series. The two previous trials apparently show that while the lambs fed ground soybeans ate with good appetites and made good gains, the rate and economy of gains were never superior to the lots receiving cottonseed meal as their supplement. Owing to the prices current for soybeans, when of good quality, it has never been a good farm practice to feed ground soybeans rather than cottonseed meal. This year, linseed oil meal has been included in the comparisons.

The three lots of lambs were fed alike except that Lot 5 received linseed oil meal, Lot 7 cottonseed meal and Lot 8 received ground soybeans. The supplement in each lot was fed in the proportion of one part to seven parts of corn. There were 25 lambs in Lots 7 and 8 and 24 lambs in Lot 5, since one lamb was removed on account of unthriftiness. No difference was observed in the appetites of the lambs in each lot for grain and hay, but the lambs in Lot 5 consumed slightly less silage daily.

TABLE II.—Comparison of Protein Concentrates as Supplements for Fattening Lambs—October 28, 1917, to January 26, 1918

| Ration | Lot 5 | Lot 7 | Lot 8 |
|-------------------------------------|--|---|---|
| | shelled corn, linseed oil meal, corn silage, clover hay | shelled corn, cottonseed meal, corn silage, clover hay | shelled corn, ground soybeans, corn silage, clover hay |
| Average initial weight | 56.3 lbs. | 55.9 lbs. | 56.2 lbs. |
| Average final weight | 81.8 " | 81.2 " | 81.4 " |
| Average gain per lamb | 25.5 " | 25.3 " | 25.2 " |
| Average daily gain | 0.283 " | 0.281 " | 0.280 " |
| Average daily feed per lamb | | | |
| concentrates | 1.10 " | 1.10 " | 1.10 " |
| clover hay | 0.64 " | 0.64 " | 0.64 " |
| corn silage | 1.52 " | 1.54 " | 1.55 " |
| Feed per 100 pounds gain | | | |
| concentrates | 389.0 " | 393.0 " | 393.0 " |
| clover hay | 226.0 " | 228.0 " | 229.0 " |
| corn silage | 538.0 " | 548.0 " | 552.0 " |
| Cost per 100 pounds gain | \$13.22 | \$13.18 | \$13.41 |
| Selling value of lambs in feed lots | 17.25 | 17.00 | 17.00 |
| Profit per lamb | 0.29 | 0.10 | 0.03 |

In Table II, it will be noted that the lambs in Lot 5 made an average gain per lamb of 25.5 pounds; in Lot 7 the average gain during the 90 days was 25.3 pounds; in Lot 8, the gain per lamb was 25.2 pounds. The average daily gain was 0.283 pound in Lot 5, 0.281 pound in Lot 7, and 0.280 pound in Lot 8. The lambs in Lot 5 ate a daily ration of 3.26 pounds per head; in Lot 7, the average daily ration was 3.28 pounds, and in Lot 8, 3.29 pounds.

The lambs fed linseed oil meal required 389 pounds of concentrates and 764 pounds of roughage for the production of 100 pounds of mutton. The lambs fed cottonseed meal required 393 pounds of concentrates and 776 pounds of roughage for 100 pounds of gain. The lambs fed ground soybeans required a total of 393 pounds of concentrates and 781 pounds of roughage for the production of 100 pounds of mutton. The linseed oil meal, on the basis of this trial, apparently effected a saving of four pounds of concentrates and 12 pounds of roughage in comparison with cottonseed meal and four pounds of concentrates and 17 pounds of roughage in comparison with ground soybeans.

It will be noted that the lambs fed linseed oil meal were valued at 25 cents per hundred pounds more than the other two lots.

At the prevailing prices of feeds, the cost per hundred pounds of gain in Lot 5 was \$13.22; in Lot 7, \$13.18; in Lot 8, \$13.41. The average lamb in Lot 5 returned a profit of 29 cents; the average profit per lamb in Lot 7 was 10 cents, and that in Lot 8 was three cents.

Unless cull soybeans can be used, it will not be profitable at present prices of protein concentrates, to use ground soybeans as supplement in fattening lambs.

PART III

HOMINY FEED VS. SHELLED CORN

The demand for substitutes for corn to use in fattening animals has become very important. The high prices and scarcity of corn during the summer of 1917 and the scarcity of good feeding corn in many counties in the State during the winter of 1917-18 caused serious difficulties in securing satisfactory corn for fattening live stock. As one of the important by-products from the rapidly increasing manufacture of human foods from corn, hominy feed offers a rather large source of feed. In composition, hominy feed is somewhat similar to corn. For hogs, it has been demonstrated to be an efficient corn substitute. For information as to the relative feeding value of hominy feed and shelled corn for lambs, two lots were fed identical rations of cottonseed meal, silage and clover hay, except that hominy feed was fed in Lot 3 and shelled corn in Lot 7. The lambs in both lots were gradually brought on feed until each lot of 25 lambs was consuming daily 24 pounds of hominy feed and corn respectively. At the beginning of the third month, the ration was increased to 28 pounds. Two weeks prior to the close of the feeding trial, the amount was again advanced. It was found that the lambs in Lot 3, receiving hominy feed, would not consume over 30 pounds of hominy feed daily. The lambs fed shelled corn readily consumed 32 pounds of corn. No attempt was made to increase the corn in Lot 7 above 32 pounds. It was observed that the lambs fed hominy feed uniformly required from 20 to 40 minutes longer to consume the feed. There was no indication of the hominy feed being distasteful to the lambs at any time.

TABLE III.—Hominy Feed vs. Shelled Corn for Fattening Lambs—
October 28, 1917, to January 26, 1918

| Ration | Lot 3 | Lot 7 |
|-------------------------------------|--|---|
| | hominy feed, cottonseed meal, corn silage, clover hay | shelled corn, cottonseed meal, corn silage, clover hay |
| Average initial weight | 56.0 lbs. | 55.9 lbs. |
| Average final weight | 81.3 " | 81.2 " |
| Gain per lamb | 25.3 " | 25.3 " |
| Average daily gain | 0.281 " | 0.281 " |
| Average daily feed per lamb | | |
| concentrates | 1.09 " | 1.10 " |
| clover hay | 0.64 " | 0.64 " |
| corn silage | 1.46 " | 1.54 " |
| Feed per 100 pounds gain | | |
| concentrates | 388.0 " | 393.0 " |
| clover hay | 227.0 " | 228.0 " |
| corn silage | 520.0 " | 548.0 " |
| Cost per 100 pounds gain | \$12.99 | \$13.18 |
| Selling value of lambs in feed lots | 17.10 | 17.00 |
| Profit per lamb | 0.23 | 0.10 |

It will be noted that the total gain per lamb in the two lots was exactly the same, 25.3 pounds. The lambs fed hominy feed ate on an average, a daily feed of 3.19 pounds while the lambs fed shelled corn consumed 3.28 pounds daily per lamb. The identical gains in live weight of the lambs fed hominy feed at a less daily feed consumption as compared with the shelled corn lot, made the production of mutton slightly more economical. The concentrates required per 100 pounds of gain in Lot 3 were 388 pounds. The required amount of roughage was 747 pounds. The lambs fed shelled corn required 393 pounds of concentrates and 776 pounds of roughage. The lambs fed hominy feed during this first trial required five pounds of concentrates and 29 pounds of roughage per 100 pounds of gain less than the shelled corn lambs.

The selling price of the lot fed hominy feed was \$17.10 or 10 cents more per hundred pounds than the lambs receiving shelled corn. The profit per lamb in Lot 3 was 23 cents; the profit per lamb in Lot 7 was 10 cents.

PART IV

PARTIAL VS. CONTINUOUS GRAIN FEEDING

Due to the increased cost of production, it has been found desirable to fatten animals destined for the block, as far as consistent with gains and profit, with a minimum expenditure of concentrates or grain. Such a practice has become especially desirable during the present war emergency. If lambs could be fed during the first portion of the feeding period upon such roughages of the farm as corn silage and clover hay, supplemented by a protein concentrate, a valuable amount of grain needed for human consumption or for the production of pork might be conserved. The question as to whether grain could be profitably withheld for the first part of the fattening period in the case of western lambs is a debatable one. To obtain information upon this question, the Purdue University Agricultural Experiment Station fed two lots of lambs during the winter of 1917-18.

Two lots of 25 lambs each were fed. The lambs in Lot 4 did not receive any grain for the first 40 days. Their daily ration during this period was 0.25 pound of cottonseed meal and all the corn silage and clover hay they desired. Lot 7 was fed grain from the beginning with cottonseed meal in the proportions of one part to seven parts of corn. In addition, the lambs in Lot 7 received the amounts of corn silage and clover hay that they would consume without waste.

At the end of 40 days, shelled corn was introduced in the ration of Lot 4. The amount was rapidly increased until the lambs were receiving 32 pounds of corn daily. Two weeks before the close of the feeding period, the amount was increased to 36 pounds daily. The amount of silage and hay consumed by Lot 4 varied according to the amount of grain fed. During the 40-day no-corn period, the maximum daily consumption per lot of corn silage was 60 pounds, and that of clover hay was 24 pounds. When corn was introduced, the daily consumption of roughage materially decreased. At the close of the feeding trial, the daily roughage consumption was 40 pounds of silage and 14 pounds of hay per lot.

TABLE IV.—Partial vs. Continuous Feed of Grain for Fattening Lambs—
Average Daily Feed and Average Daily Gain by Months—
October 28, 1917, to January 26, 1918

| Average daily feed | Partial feed ¹ | Continuous feed ² |
|--------------------|---------------------------|------------------------------|
| First month | | |
| concentrates | 0.18 | 0.825 |
| clover hay | 0.98 | 0.80 |
| corn silage | 1.35 | 1.15 |
| Second month | | |
| concentrates | 0.86 | 1.12 |
| clover hay | 0.71 | 0.56 |
| corn silage | 2.28 | 1.71 |
| Third month | | |
| concentrates | 1.69 | 1.36 |
| clover hay | 0.56 | 0.56 |
| corn silage | 1.66 | 1.76 |
| Average daily gain | | |
| First month | 0.253 | 0.331 |
| Second month | 0.228 | 0.211 |
| Third month | 0.353 | 0.301 |

¹ Ration—no corn first 40 days, shelled corn 50 days, cottonseed meal, corn silage, clover hay

² Ration—shelled corn (continuous) cottonseed meal, corn silage, clover hay

Upon studying Table IV, it will be noted that the average daily feed per lamb in Lot 4 the first month was 2.51 pounds, for the second month 3.85 pounds, and for the third month 3.91 pounds. The average daily feed consumption per lamb in Lot 7 for the first month was 2.775 pounds, for the second month 3.39 pounds, and 3.68 pounds for the third month. Apparently the lambs fed grain from the beginning of the experiment went on feed faster than those not receiving grain. However, in the two succeeding months the daily consumption per lamb in Lot 4 was superior to that of the lambs in Lot 7.

Upon noting the average daily gain per lamb per month the influence of the superior feed consumption is apparent. The lambs fed corn continuously outgained the lambs fed no corn the first month, when the feed consumption was in their favor. When the daily feed consumption was greater in Lot 4 than in Lot 7, the advantage in daily gains changed to the lot of lambs fed a partial feed of corn.

TABLE V.—Partial vs. Continuous Feed of Grain for Fattening Lambs—
October 28, 1917, to January 26, 1918

| Ration | Lot 4 | Lot 7 |
|-------------------------------------|---|--|
| | no corn first 40 days, shelled corn 50 days, cottonseed meal, corn silage, clover hay | shelled corn (continuous) cottonseed meal, corn silage, clover hay |
| Average initial weight | 56.0 lbs. | 55.9 lbs. |
| Average final weight | 81.0 " | 81.2 " |
| Average gain per lamb | 25.0 " | 25.3 " |
| Average daily gain | 0.278 " | 0.281 " |
| Average daily feed per lamb | | |
| concentrates | 0.91 " | 1.10 " |
| clover hay | 0.75 " | 0.64 " |
| corn silage | 1.76 " | 1.54 " |
| Feed per 100 pounds gain | | |
| concentrates | 326.0 " | 393.0 " |
| clover hay | 269.0 " | 228.0 " |
| corn silage | 634.0 " | 548.0 " |
| Cost per 100 pounds gain | \$12.81 | \$13.18 |
| Selling value of lambs in feed lots | 16.85 | 17.00 |
| Profit per lamb | 0.06 " | 0.10 " |

The average daily feed consumption of the lambs fed a partial feed of corn throughout the entire 90 days was 3.42 pounds, while that of the lambs fed grain from the start was 3.28 pounds. The average daily gain per lamb in Lot 4 was slightly less than that of Lot 7, being 0.278 pound as opposed to 0.281 pound. The total gain per lamb in Lot 7 was 25.3 pounds and in Lot 4 was 25 pounds. The feed requirement per hundred pounds of gain in Lot 4 was 326 pounds of concentrates and 903 pounds of roughage. In Lot 7, the lambs required 393 pounds of concentrates and 776 pounds of roughage for each 100 pounds of gain. The cost per hundred pounds gain in Lot 4 was \$12.81 and in Lot 7 \$13.18.

The lambs in Lot 4 were valued at \$16.85 per hundred pounds, the lambs in Lot 7 were valued at \$17.00. The profit per lamb in Lot 4 was six cents, while the profit per lamb in Lot 7 was 10 cents.

PART V

INFLUENCE OF SHEARING

The practice of shearing fattening western lambs at different times in the fattening period has been adopted by a considerable number of lamb feeders. For many years, the practice of shearing lambs in March and April has been rather common. The lambs so managed, have been destined for April or May markets. More recently, the practice of clipping the lambs in the fall just previous to starting them on feed, has been used. Owing to the high prices of wool and the supposed stimulating effect of clipping, some feeders think that clipping lambs a short time prior to marketing is profitable.

Last year (the winter of 1916-17), this station clipped two lots of lambs just previous to placing on feed. It was found in this trial that the clipped lambs did not gain as rapidly, made less economical gains and did not return as much profit as the woolled lambs.

In this bulletin is reported a trial in which one lot of lambs was shorn two weeks previous to marketing. Two lots of 25 lambs each were fed exactly the same ration of shelled corn, cottonseed meal, corn silage and clover hay. Upon January 11, 1918, the lambs of Lot 2 were shorn. Prior to the shearing, both lots of lambs were sheltered in the same shed. After clipping, the lambs in Lot 2 were housed at night in a barn on account of severely cold weather, but were allowed to run in the open shed and lot during the day.

Previous to the shearing, both lots of lambs were receiving 28 pounds of shelled corn daily per lot. After shearing, the corn was increased to 32 pounds per lot. The shorn lambs consumed this amount fairly readily but would not consume the same amount of corn silage as before the increase in grain. As a result, the average daily feed per lamb in Lot 2 was decreased. The woolled lambs in Lot 7 consumed the increased amount of grain without any decrease in their consumption of roughage.

The amount of wool shorn from the lambs in Lot 2 was 3.14 pounds per lamb. The wool was of short staple and was sold for 50 cents per pound.

TABLE VI.—Influence of Shearing on Fattening Lambs—Average Gains by Months, February 28, 1917, to January 26, 1918

| | Lot 2 | Lot 7 |
|------------------------------------|--------------------------------------|--------------|
| | clipped lambs shorn Jan. 11, 1918 | wooled lambs |
| First month Oct. 28 to Nov. 27 | 0.28 | 0.331 |
| Second month Nov. 27 to Dec. 27 | 0.251 | 0.211 |
| Third month Dec. 27 to Jan. 26 | 0.182 | 0.301 |

It will be observed in Table VI that the two lots of lambs prior to the shearing of Lot 2, gained somewhat the same and that Lot 2 had made a very good average daily gain during the month preceding the one in which the lambs were shorn. During the third month, the average daily gain per lamb in Lot 2 dropped to the low gain of 0.182 pound while the lambs in Lot 7 averaged a daily gain of 0.301 pound. Apparently the shearing of the lambs caused a very large decrease in gains.

TABLE VII.—Influence of Shearing on Fattening Lambs—October 28, 1917, to January 26, 1918

| | Lot 2 ¹ | Lot 7 ¹ |
|-------------------------------------|---|--------------------|
| | Clipped lambs shorn Jan. 11, 1918, two weeks before close of trial | wooled lambs |
| Average initial weight | 56.2 lbs. | 55.9 lbs. |
| Average final weight | 77.5 ² " | 81.2 " |
| Average gain per lamb | 21.3 ² " | 25.3 " |
| Average daily gain | 0.238 " | 0.281 " |
| Average daily feed per lamb | | |
| concentrates | 1.10 " | 1.10 " |
| clover hay | 0.64 " | 0.64 " |
| corn silage | 1.49 " | 1.54 " |
| Feed per 100 pounds gain | | |
| concentrates | 464.0 " | 393.0 " |
| clover hay | 270.0 " | 228.0 " |
| corn silage | 627.0 " | 548.0 " |
| Cost per 100 pounds gain | \$15.52 | \$13.18 |
| Selling value of lambs in feed lots | 14.75 | 17.00 |
| Profit or loss per lamb | -1.19 ² | +0.10 |

¹ Ration—shelled corn, cottonseed meal, clover hay and corn silage

² Includes 3.14 pounds wool at 50 cents per pound

The average daily amount of feed consumed by the lambs in Lot 2 throughout the 90-day feeding period was 3.23 pounds while the lambs of Lot 7 consumed daily 3.28 pounds per lamb. The average daily gain per lamb in the shorn lot was 0.238 pound, while the lambs in the unshorn lot gained 0.281 pound each. It required 464 pounds of concentrates and 897 pounds of roughage to produce 100 pounds of increase in live weight in Lot 2. The lambs in Lot 7 required only 393 pounds of concentrates and 776 pounds of roughage for the same amount of gain. At the prevailing prices of feeds, the gains in the shorn lot cost \$15.52 per hundred pounds; the cost per hundred pounds of gain in the woolled lot was \$13.18.

The clipped lambs were valued at \$14.75 per hundred pounds; their wool sold for 50 cents per pound and the lot returned a loss of \$1.19 per lamb. The woolled lambs were valued at \$17.00 and returned a profit of 10 cents per head.

TABLE VIII.—Summary of Lamb Feeding Experiment, October 28, 1917, to January 26, 1918 (90 days)

| Ration | Lot | | | | | | | | Summary |
|-------------------------|--|---|---|---|---|---|--|--|--------------|
| | Lot 1 | Lot 2 | Lot 3 | Lot 4 | Lot 5 | Lot 6 | Lot 7 | Lot 8 | |
| | shelled corn, cottonseed meal, corn silage | shelled corn, cottonseed meal, clover hay, corn silage, clipped Jan. 11 | hominy feed, cottonseed meal, corn silage, clover hay | cottonseed meal, clover hay, corn silage, shelled corn last 50 days | shelled corn, linseed oil meal, corn silage, clover hay | shelled corn, cottonseed meal, corn silage, every 5th day | shelled corn, cottonseed meal, corn silage, clover hay | shelled corn, ground soybeans, corn silage, clover hay | |
| Number of lambs per lot | 25 | 25 | 25 | 25 | 24 | 25 | 25 | 25 | 199 |
| Initial cost | \$18.55 | \$18.55 | \$18.55 | \$18.55 | \$18.55 | \$18.55 | \$18.55 | \$18.55 | \$18.55 |
| Initial weight | 1401.0 lbs. | 1404.0 lbs. | 1399.0 lbs. | 1400.0 lbs. | 1351.0 lbs. | 1400.0 lbs. | 1398.0 lbs. | 1404.0 lbs. | 11157.0 lbs. |
| Final weight | 1920.0 " | 1938.5 " | 2032.0 " | 2026.0 " | 1962.0 " | 1984.0 " | 2030.0 " | 2034.0 " | 15926.5 " |
| Total gain | 519.0 " | 534.5 " | 633.0 " | 626.0 " | 611.0 " | 584.0 " | 632.0 " | 630.0 " | 4769.5 " |
| Average initial weight | 56.0 " | 56.2 " | 56.0 " | 56.0 " | 56.3 " | 56.0 " | 55.9 " | 56.2 " | 56.1 " |
| Average final weight | 76.8 " | 77.5 " | 81.3 " | 81.0 " | 81.8 " | 79.4 " | 81.2 " | 81.4 " | 80.0 " |
| Average daily gain | 0.231 " | 0.238 " | 0.281 " | 0.278 " | 0.283 " | 0.26 " | 0.281 " | 0.280 " | 0.286 " |
| Total feed consumed | | | | | | | | | |
| shelled corn | 1874.0 " | 1874.0 " | | 1533.0 " | 1799.0 " | 1874.0 " | 1874.0 " | 1874.0 " | 12702.0 " |
| hominy meal | | | 1852.0 " | | | | | | 1852.0 " |
| oats | 275.0 " | 275.0 " | 275.0 " | | 260.0 " | 275.0 " | 275.0 " | 275.0 " | 1910.0 " |
| cottonseed meal | 330.5 " | 330.5 " | 330.5 " | 510.0 " | | 330.5 " | 330.5 " | | 2162.5 " |
| linseed oil meal | | | | | 317.3 " | | | | 317.3 " |
| ground soybeans | | | | | | | | 330.5 " | 330.5 " |
| clover hay | 446.0 " | 1443.0 " | 1439.0 " | 1683.0 " | 1381.5 " | 722.0 " | 1439.0 " | 1443.0 " | 9996.5 " |
| corn silage | 4460.0 " | 3353.0 " | 3290.0 " | 3967.0 " | 3286.0 " | 4174.0 " | 3465.0 " | 3477.0 " | 29472.0 " |
| Average daily feed | | | | | | | | | |
| concentrates | 1.10 " | 1.10 " | 1.09 " | 0.91 " | 1.10 " | 1.10 " | 1.10 " | 1.10 " | 1.08 " |
| clover hay | 0.20 " | 0.64 " | 0.64 " | 0.75 " | 0.64 " | 0.32 " | 0.64 " | 0.64 " | 0.56 " |
| corn silage | 1.98 " | 1.49 " | 1.46 " | 1.76 " | 1.52 " | 1.86 " | 1.54 " | 1.55 " | 1.64 " |

| Feed per 100 pounds gain | | | | | | | | | | | | | | | | | | |
|--------------------------|---------|---|---------------------|---|---------|---|---------|---|---------|---|---------|---|---------|---|---------|---|----------|-------|
| shelled corn | 361.0 | " | 351.0 | " | 293.0 | " | 245.0 | " | 294.0 | " | 321.0 | " | 297.0 | " | 297.0 | " | Grain " | 404.0 |
| hominy meal | 53.0 | " | 51.0 | " | 43.0 | " | | " | 43.0 | " | 47.0 | " | 44.0 | " | 44.0 | " | | |
| oats | 64.0 | " | 62.0 | " | 52.0 | " | 81.0 | " | 52.0 | " | 57.0 | " | 52.0 | " | 52.0 | " | | |
| cottonseed meal | | | | | | | | | | | | | | | | | | |
| linseed oil meal | | | | | | | | | | | | | | | | | | |
| ground soybeans | 86.0 | " | 270.0 | " | 227.0 | " | 269.0 | " | 226.0 | " | 124.0 | " | 228.0 | " | 229.0 | " | 210.0 | " |
| clover hay | 859.0 | " | 627.0 | " | 520.0 | " | 634.0 | " | 538.0 | " | 715.0 | " | 548.0 | " | 552.0 | " | 618.0 | " |
| corn silage | | | | | | | | | | | | | | | | | | |
| Cost of feeds | | | | | | | | | | | | | | | | | | |
| shelled corn | \$37.48 | | \$37.48 | | \$37.04 | | \$30.66 | | \$35.98 | | \$37.48 | | \$37.48 | | \$37.48 | | \$254.04 | |
| hominy meal | | | | | | | | | | | | | | | | | 37.04 | |
| oats | 6.02 | | 6.02 | | 6.02 | | 13.64 | | 5.69 | | 6.02 | | 6.02 | | 6.02 | | 41.78 | |
| cottonseed meal | 8.84 | | 8.84 | | 8.84 | | | | 9.52 | | 8.84 | | 8.84 | | 8.84 | | 57.85 | |
| linseed oil meal | | | | | | | | | | | | | | | | | 9.52 | |
| ground soybeans | | | | | | | | | | | | | | | | | 9.92 | |
| clover hay | 5.58 | | 18.04 | | 17.99 | | 21.04 | | 17.27 | | 9.03 | | 17.99 | | 18.04 | | 124.96 | |
| corn silage | 16.73 | | 12.57 | | 12.34 | | 14.88 | | 12.32 | | 15.65 | | 12.99 | | 13.04 | | 110.52 | |
| Total | | | | | | | | | | | | | | | | | | |
| Cost per 100 pounds gain | \$74.65 | | \$82.95 | | \$82.23 | | \$80.22 | | \$80.78 | | \$77.02 | | \$83.32 | | \$84.50 | | \$645.63 | |
| Cost of lambs | 14.38 | | 15.52 | | 12.99 | | 12.81 | | 13.22 | | 13.19 | | 13.18 | | 13.41 | | 13.54 | |
| Total cost | 259.89 | | 260.44 | | 259.51 | | 259.70 | | 250.61 | | 259.70 | | 259.33 | | 260.44 | | 2069.62 | |
| Necessary selling price | 334.54 | | 343.39 | | 341.74 | | 339.92 | | 331.39 | | 336.72 | | 342.65 | | 344.94 | | 2716.25 | |
| Selling price per cwt., | 17.42 | | 16.35 | | 16.82 | | 16.78 | | 16.89 | | 16.97 | | 16.88 | | 16.96 | | 16.89 | |
| Lafayette basis | | | | | | | | | | | | | | | | | | |
| Selling value per lot | 16.90 | | 14.75 | | 17.10 | | 16.85 | | 17.25 | | 16.85 | | 17.00 | | 17.00 | | 16.71 | |
| Profit or loss per lot | 324.48 | | 313.60 ¹ | | 347.47 | | 341.38 | | 338.45 | | 334.30 | | 345.10 | | 345.78 | | 2690.56 | |
| Profit or loss per lot | -10.06 | | -29.79 | | +5.73 | | +1.46 | | +7.06 | | -2.42 | | +2.45 | | +0.84 | | -25.69 | |
| Profit or loss per lamb | - 0.40 | | - 1.19 | | +0.23 | | +0.06 | | -0.29 | | -0.10 | | +0.10 | | +0.03 | | -0.13 | |

¹ Includes 78.5 pounds of wool at 50 cents per pound or \$39.25

Based on the following prices of feeds: corn, \$1.12 per bushel; hominy feed, \$60.00 per ton; oats, 70 cents per bushel; cottonseed meal, \$53.00 per ton; linseed oil meal, \$60.00 per ton; ground soybeans, \$60.00 per ton; clover hay, \$25.00 per ton; corn silage, \$7.50 per ton

Initial value of lambs is actual cost in feed lots. Final values of lambs are 75 cents below Chicago valuation for fat lambs

ACTUAL EXPENDITURES

| | |
|---|-------------------|
| Original cost of lambs in feed lot..... | \$2,433.97 |
| Cost of feed while on experiment..... | 645.63 |
| Cost of feed for cull lambs..... | 75.91 |
| Cost of feed after experiment closed..... | 140.05 |
| Total cost | <u>\$3,295.56</u> |

ACTUAL RECEIPTS

| | |
|---|-------------------|
| Jan. 30, 1918, Bogan-Jacques, 78.5 lbs. wool at 50 cents per pound | \$ 39.25 |
| Feb. 6, 1918, L. Plaelser & Son, 125 lambs..... | 1,686.38 |
| Feb. 12, 1918, Dryfus Packing Co., 10 lambs..... | 136.85 |
| Feb. 18, 1918, Swift & Company, 73 lambs..... | 891.19 |
| Feb. 18, 1918, Dryfus Packing Co., 15 lambs..... | 214.78 |
| Total receipts | <u>\$2,968.45</u> |
| Net loss ¹ | <u>\$ 327.11</u> |

¹ This loss is due in large part to the fact that it was impossible to market the lambs immediately after the close of the experiment on account of inability to obtain cars, and in the meantime, the market price for lambs seriously declined

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Agricultural Experiment Station

BULLETIN No. 222

SEPTEMBER, 1918



Fig. 1. Effect of manure on corn, Scottsburg field, 1917. Each shock is the produce of one-twentieth acre

No manure
35.9 bushels corn per acre

Manured
61.9 bushels corn per acre

THE VALUE OF MANURE ON INDIANA SOILS

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THE VALUE OF MANURE ON INDIANA SOILS

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SUMMARY

Farm manures are now worth twice as much as they were before the war.

With present prices of crops, manure applied at a normal rate will produce crop increases worth from \$2.00 to over \$8.00 per ton of manure, according to the fertility of the soil and the crops grown. The average return on the seven experiment fields reported in this bulletin has been \$5.00 per ton of manure applied.

On the average farm, about one-third of the value of stable manure is lost by improper methods of conservation and handling.

One-half the value of manure is in the urine. This can be saved by concrete floors in stables and feed lots and the use of sufficient absorbent bedding.

The best way to prevent losses in manure through fermentation and leaching is to spread it upon the land as rapidly as it is made.

Every barnyard should be provided with a concrete manure pit or enclosure in which manure, when it must be stored, can be compactly piled.

When manure must be stored in piles it should be thoroughly compacted. The pile should be at least four feet high and made with perpendicular sides and kept level or dished on top to catch and hold the rain water which falls upon it, thus keeping the manure moist.

Manure exposed to the weather in loose piles for a few months may lose one-half its fertilizing value through fermentation and leaching.

The most economical use of manure is to apply it to the land most in need of organic matter and nitrogen, once for each round of the crop rotation in amounts approximately equal to the cured weight of the produce harvested.

Light applications of manure made every three or four years are much more profitable than heavy applications made at longer intervals.

To get the most out of manure, it should be reinforced with phosphates, preferably acid phosphate, using from 40 to 50 pounds per ton of manure. If preferred, the phosphate may be applied by itself in any convenient place in the rotation.

INTRODUCTION

The value of farm manure has practically doubled within the last two years due to the rise in the prices of farm produce. Farmers, as a rule, do not realize this condition and are showing too little care in the conservation and utilization of this valuable product. With the present urgent demand for more food and the high prices of commercial fertilizers, it is especially important to make the best possible use of the plant food materials produced on the farm.

Manure offers a ready and relatively cheap means of increasing crop production. It is the natural farm fertilizer and should be much more fully utilized. Manure not only supplies important elements of plant food but also provides the best form of decomposable organic matter to the soil, improving its physical condition and furthering highly important bacterial activities, which commercial fertilizers alone cannot bring about.

Experiments conducted for the last 28 years on the Purdue farm experiment field at LaFayette and for from two to 12 years on several experiment fields in other parts of the State, show that under present conditions a ton of ordinary stable manure judiciously used will produce crop increases worth from \$2.00 to over \$8.00, according to the fertility of the land, the rate of application, and the crops for which it is used. A calculation based on the average results of the experiments of this station and the 1910 census of live stock in the State shows that the manure made in the stables and feed lots of Indiana is worth at least \$72,000,000 annually. It is conservatively estimated that at least one-third of the manure thus produced is wasted through carelessness. Under present conditions this means a loss to the farmers of Indiana of at least \$24,000,000 annually. This loss can be very largely prevented by proper methods of conservation and handling.

This bulletin presents the results of some of the Station's field experiments in the use of manure, together with discussions of the principal points to be observed in its management.

MANURE EXPERIMENTS ON THE SCOTTSBURG FIELD

The Scottsburg field is located on Volusia silt loam, commonly called "yellow clay," which is the predominating soil type on the hilly lands of southern Indiana. The land had been exhaustively cropped for many years, with no manure and but little fertilizer applied, and was badly run down. The field was laid out in the fall of 1905 with three series of similarly treated plots for a corn, wheat and clover rotation, so that all the crops in the rotation could be grown every year. The manuring is at the rate of 10 tons per acre per rotation. The first application of manure was made on the first wheat crop on each series of plots, beginning in the fall of 1905. After that, the manure was plowed under for corn once in three years. Both the manured and unmanured plots were limed in 1911 with two tons of ground limestone per acre. All the crops have been removed from the land except the small amount of second growth clover, which has been plowed under.

In Table I are shown the average annual crop yields on the manured and unmanured land, together with the increases produced by the manure and the financial results at present crop prices.¹

¹ Throughout this bulletin the crop increases produced have been valued, in round numbers, approximately at the prices prevailing at this time, as follows: corn \$1.00, oats 70 cents and wheat \$2.00 per bushel; stover \$6.00, oats straw \$6.00, wheat straw \$5.00, and hay, \$20.00 per ton. No set price has been placed upon manure, but its value per ton has been calculated from the value of the crop increases which it actually produced in each case.

TABLE I.—Results from Manure on a Corn, Wheat and Clover Rotation, Scottsburg Experiment Field, 1906-1918

| Plot No. | Treatment | Average yields per acre | | | | | Value of increase per acre per year | Tons manure per acre per year | Return per ton of manure |
|----------|-----------------|-------------------------|---------------|---------------|--------------|------------|-------------------------------------|-------------------------------|--------------------------|
| | | Corn bushels | Stover pounds | Wheat bushels | Straw pounds | Hay pounds | | | |
| 16 | Lime only | 30.0 | 2653.0 | 9.7 | 985.0 | 674.0 | | | |
| 15 | Lime and manure | 50.2 | 4064.0 | 19.3 | 1999.0 | 1429.0 | | | |
| | Gain for manure | 20.2 | 1411.0 | 9.6 | 1014.0 | 755.0 | \$17.89 | 3.33 | \$5.37 |



Fig. 2. Effect of manure on wheat, Scottsburg field, 1918. Each shock is the produce of one-twentieth acre

No manure

11.0 bushels wheat per acre

Manured

30.7 bushels wheat per acre

In Table I it will be seen that the manure has produced large increases on corn and wheat. While the hay yields have been more than doubled by the manure, they have been unsatisfactory on account of several years of unfavorable weather conditions and the fact that the land was especially low in organic matter and in extremely bad physical condition to begin with, causing several complete failures, which have kept down the average yield. In the last three years the hay yields have been fairly good, averaging 2795 pounds per acre. Notwithstanding the poor average hay yield, the manure has made a good showing on this field as compared with the unmanured land, producing average crop increases worth \$17.89 per acre per year, or \$5.37 per ton of manure.

It should be noted that the rate of manuring on this field (10 tons per acre per rotation) has been considerably above normal, that is, the amount applied in each rotation has been much larger than could have been made from the produce under ordinary farm conditions where a fair average production is a pound of manure for every pound of feed

and bedding used. On this basis, the amount of manure that could have been made from the produce other than wheat grain, would have been about 5.4 tons per acre per rotation instead of the 10 tons actually used. In the light of our present knowledge, a more nearly normal rate of manuring would doubtless have returned larger profits per ton of manure. This is indicated in the results on the Purdue Farm experiment field reported later in this bulletin where light and heavy applications of manure have been compared.

MANURE EXPERIMENTS ON THE NORTH VERNON FIELD

The experiment field at North Vernon in Jennings County is located on the flat, whitish-gray silt loam soil commonly known as "slash land," which is widely represented in southeastern Indiana. The field was laid out for experimental purposes and thoroughly tile drained in the fall of 1911. In 1912, the land was limed with fine ground limestone at the rate of four tons per acre and a preliminary crop of soybeans grown. This crop was harvested, the seed threshed out and the soybean straw returned to the land. Three series of plots were laid out for a corn, wheat and clover rotation so that all the crops in the rotation could be grown every year. Manure has been applied at the rate of six tons per acre, plowed under for corn once in three years, beginning in 1913. All the crops have been removed from the land except the second growth clover, which has been plowed under.

TABLE II.—Results from Manure on a Corn, Wheat and Clover Rotation, North Vernon Experiment Field, 1913-1918

| Plot No. | Treatment | Average yields per acre | | | | | Value of increase per acre per year | Tons manure per acre per year | Return per ton of manure |
|----------|-----------------|-------------------------|---------------|---------------|--------------|------------|-------------------------------------|-------------------------------|--------------------------|
| | | Corn bushels | Stover pounds | Wheat bushels | Straw pounds | Hay pounds | | | |
| 2 | Lime only | 45.6 | 3061.0 | 12.1 | 1428.0 | 3580.0 | | | |
| 1 | Lime and manure | 71.3 | 4828.0 | 20.3 | 2096.0 | 3980.0 | | | |
| | Gain for manure | 25.7 | 1767.0 | 8.2 | 668.0 | 400.0 | \$17.69 | 2.0 | \$8.85 |

In Table II are shown the average annual crop yields secured from six tons of manure per acre per rotation on limed land on the North Vernon experiment field during the last five years, together with the increases produced by the manure and the financial results. The comparatively small average wheat yields are due to the fact that two of the six crops grown were badly damaged by Hessian fly. The corn yields have been very satisfactory considering the character of the land. On land across the fence to the west, which until five years ago was a part of the same field, the 1916 corn crop was not worth husking, while that on the experiment field averaged 67.9 bushels per acre. On another field, lying to the south, the 1917 corn crop produced only about 30 bushels per acre, while the corn in the experiment field averaged 78.5 bushels per acre.



Fig. 3. Effect of manure on wheat, North Vernon field, 1918. Each shock is the produce of one-twentieth acre

Lime and manure
30.7 bushels wheat per acre

Lime only
18.7 bushels wheat per acre

These differences are due in large part to the fact that the experiment field is well tile drained, while the adjoining fields have only surface drainage.

The manure on the experiment field has produced crop increases valued at \$53.07 per acre per rotation, or \$17.69 per acre per year and \$8.85 per ton of manure applied. Other experiments have shown this soil to be particularly deficient in nitrogen, organic matter and phosphorus, which accounts for the high value of manure on this land. The addition of 200 pounds of acid phosphate per acre to the lime and manure treatment on another part of this field, has added further crop increases worth \$14.98 per acre per rotation. The rate of manuring on this field has been somewhat below normal. On the basis stated in the discussion of the results on the Scottsburg field, the produce would have made 7.9 tons of manure per acre per rotation instead of the six tons actually used.

MANURE EXPERIMENTS ON THE WORTHINGTON FIELD

The experiment field at Worthington in Greene County is located on Knox silt loam, commonly called "clay", which is the predominating soil type of the rolling uplands of that section of the State and is similar to much of the light colored so-called "clay" soils of central Indiana. The plan of this field is a duplicate of that at North Vernon. It was started at the same time and the treatment has been the same except that the soil being less acid, ground limestone was applied at the rate of only two tons per acre.

In Table III are shown the average annual crop yields secured from six tons of manure per acre per rotation on limed land on the Worthington experiment field during the last five years, together with the increases produced by the manure and the financial results.

TABLE III.—Results from Manure on a Corn, Wheat and Clover Rotation, Worthington Experiment Field, 1913-1918

| Plot No. | Treatment | Average yields per acre | | | | | Value of increase per acre per year | Tons manure per acre per year | Return per ton of manure |
|----------|-----------------|-------------------------|---------------|---------------|--------------|------------|-------------------------------------|-------------------------------|--------------------------|
| | | Corn bushels | Stover pounds | Wheat bushels | Straw pounds | Hay pounds | | | |
| 2 | Lime only | 33.6 | 2393.0 | 9.2 | 859.0 | 3945.0 | | | |
| 1 | Lime and manure | 41.1 | 2606.0 | 13.7 | 1499.0 | 5092.0 | | | |
| | Gain for manure | 7.5 | 213.0 | 4.5 | 640.0 | 1147.0 | \$10.13 | 2.0 | \$5.07 |

In this case, the manure has produced crop increases valued at \$30.39 per acre per rotation, or \$10.13 per acre per year and \$5.07 per ton of manure applied. This land is naturally not so deficient in the substances supplied by the manure as the North Vernon field. The relatively low average yields of corn and wheat were due to two seasons of extremely dry weather for the corn and one entire failure of the wheat crop due to winter-killing. The addition of 200 pounds of acid phosphate per acre to the lime and manure treatment on another part of this field has added further crop increases worth \$21.44 per acre per rotation. So far, the rate of manuring on this field has been just about equal to the amount of manure that could have been made from the produce removed other than the wheat grain.



Fig. 4. Effect of manure on corn, Worthington field, 1917. Each shock is the produce of one-twentieth acre

Lime only
43.4 bushels corn per acre

Lime and manure
58.7 bushels corn per acre



Fig. 5. Effect of manure on clover, Worthington field, 1917. Each cock is the produce of one-twentieth acre

Lime and manure
7440 pounds hay per acre

Lime only
5420 pounds hay per acre

MANURE EXPERIMENTS ON DIFFERENT CROP ROTATIONS ON PURDUE FARM AT LAFAYETTE

The experiment field on the Purdue farm is located on Sioux silt loam, which is a high terrace or second bottom soil of brown to dark brown color, underlaid at from two to four feet in depth by a deep bed of gravel. The surface soil is fine in texture and naturally well supplied with organic matter and was in a good state of fertility when the experiments were begun in 1890. Due to the shallow depth of the soil and the nearness of the gravel to the surface, the land is leachy and crops, especially corn, are always more or less subject to drought.

The field was laid out for experimental purposes in the spring of 1889 and a crop of corn grown on all plots. In 1890, the six different rotations or systems of cropping shown in the following tables were begun, with two different commercial fertilizer and two different manure treatments in each case. Each series consists of seven plots. Plots 1, 4 and 7 are untreated checks, plot 2 receives a heavy application and plot 3 a light application of commercial fertilizer, plot 5 receives a heavy application and plot 6 a light application of manure. Only the two manured plots (5 and 6) and the two flanking untreated check plots (4 and 7) are considered in this bulletin to show the effects of the manuring on the different rotations and the relative values of the light and heavy applications.

In the following tables are shown the different crop rotations and the average annual crop yields per acre on the manured and unmanured plots, together with the average applications of manure, the crop increases produced by the two different rates of manuring and the financial results at present crop prices. In each rotation, the manuring was calculated to return approximately two-thirds of the crop requirements on plot 5 and

one-third on plot 6. During the earlier years, the rate of manuring was calculated from the crop yields, but since 1903 each corn crop has received six tons of manure per acre on plot 5 and three tons per acre on plot 6, and each wheat or oats crop has received four tons per acre on plot 5 and two tons per acre on plot 6. The clover has not been manured. All the produce has been removed from the land except the second growth clover, which has been plowed under.

TABLE IV.—Results from Manure in Continuous Corn Culture,
Purdue Farm Experiment Field, 1890-1917

| Treatment Tons of manure per acre per rotation | Average crop yields per acre | | | | | | Value of increase per acre per year | Tons manure per acre per year | Re- turns per ton of manure |
|---|------------------------------|------------------|--|--|--|--|--|--|---|
| | Corn bushels | Stover pounds | | | | | | | |
| Nothing | 26.7 | 2394.0 | | | | | | | |
| Manure, 6.5 tons | 38.7 | 3184.0 | | | | | | | |
| Manure, 3.6 tons | 38.4 | 2960.0 | | | | | | | |
| Nothing | 26.3 | 2132.0 | | | | | | | |
| Gain for heavy application | 12.2 | 878.0 | | | | | \$14.83 | 6.5 | \$2.28 |
| Gain for light application | 12.0 | 741.0 | | | | | 14.22 | 3.6 | 3.95 |

TABLE V.—Results from Manure in Continuous Wheat Culture,
Purdue Farm Experiment Field, 1890-1917

| Treatment Tons of manure per acre per rotation | Average crop yields per acre | | | | | | Value of increase per acre per year | Tons manure per acre per year | Re- turns per ton of manure |
|---|------------------------------|-----------------|--|--|--|--|--|--|---|
| | Wheat bushels | Straw pounds | | | | | | | |
| Nothing | 12.2 | 1205.0 | | | | | | | |
| Manure, 4.2 tons | 19.6 | 2140.0 | | | | | | | |
| Manure, 2.5 tons | 17.9 | 1799.0 | | | | | | | |
| Nothing | 12.6 | 1282.0 | | | | | | | |
| Gain for heavy application | 7.3 | 910.0 | | | | | \$17.15 | 4.2 | \$4.08 |
| Gain for light application | 5.5 | 544.0 | | | | | 12.38 | 2.5 | 4.95 |

TABLE VI.—Results from Manure on a Corn and Wheat Rotation,
Purdue Farm Experiment Field, 1890-1917

| Treatment Tons of manure per acre per rotation | Average crop yields per acre | | | | | | Value of increase per acre per year | Tons manure per acre per year | Re- turns per ton of manure |
|---|------------------------------|------------------|------------------|-----------------|--|--|--|--|---|
| | Corn bushels | Stover pounds | Wheat bushels | Straw pounds | | | | | |
| Nothing | 27.1 | 1838.0 | 9.8 | 877.0 | | | | | |
| Manure, 10.8 tons | 42.1 | 3051.0 | 21.7 | 2325.0 | | | | | |
| Manure, 6.4 tons | 39.8 | 2744.0 | 19.2 | 1888.0 | | | | | |
| Nothing | 27.4 | 1751.0 | 9.4 | 860.0 | | | | | |
| Gain for heavy application | 14.9 | 1242.0 | 12.0 | 1454.0 | | | \$23.13 | 5.4 | \$4.28 |
| Gain for light application | 12.5 | 964.0 | 9.7 | 999.0 | | | 18.64 | 3.2 | 5.82 |

TABLE VII.—Results from Manure on a Corn, Oats and Wheat Rotation,
Purdue Farm Experiment Field, 1890-1917

| Treatment Tons of manure per acre per rotation | Average crop yields per acre | | | | | | Value of increase per acre per year | Tons manure per acre per year | Re- turns per ton of manure |
|---|------------------------------|------------------|-----------------|-------------------------|------------------|--------------------------|--|--|---|
| | Corn bushels | Stover pounds | Oats bushels | Oats straw pounds | Wheat bushels | Wheat straw pounds | | | |
| Nothing | 26.2 | 1733.0 | 33.4 | 1106.0 | 11.5 | 1047.0 | | | |
| Manure, 14.8 tons | 42.8 | 2634.0 | 46.6 | 1691.0 | 21.7 | 2094.0 | | | |
| Manure, 8.8 tons | 40.6 | 2456.0 | 45.8 | 1554.0 | 18.4 | 1872.0 | | | |
| Nothing | 29.9 | 1777.0 | 36.0 | 1128.0 | 13.1 | 1274.0 | | | |
| Gain for heavy application | 15.4 | 886.0 | 12.3 | 578.0 | 9.7 | 969.0 | \$16.58 | 4.9 | \$3.38 |
| Gain for light application | 12.0 | 693.0 | 10.6 | 434.0 | 5.9 | 669.0 | 11.97 | 2.9 | 4.11 |

TABLE VIII.*—Results from Manure on a Corn, Wheat and Clover Rotation,
Purdue Farm Experiment Field, 1890-1917

| Treatment Tons of manure per acre per rotation | Average crop yields per acre | | | | | | Value of increase per acre per year | Tons manure per acre per year | Re- turns per ton of manure |
|---|------------------------------|------------------|------------------|-----------------|-------------------------|--|--|--|---|
| | Corn bushels | Stover pounds | Wheat bushels | Straw pounds | Clover hay pounds | | | | |
| Nothing | 32.2 | 1872.0 | 7.0 | 655.0 | 2231.0 | | | | |
| Manure, 11.4 tons | 43.9 | 2672.0 | 17.6 | 1803.0 | 3174.0 | | | | |
| Manure, 5.7 tons | 41.8 | 2471.0 | 13.7 | 1410.0 | 2898.0 | | | | |
| Nothing | 33.2 | 2104.0 | 7.7 | 765.0 | 2439.0 | | | | |
| Gain for heavy application | 11.4 | 723.0 | 10.4 | 1111.0 | 874.0 | | \$15.40 | 3.8 | \$4.05 |
| Gain for light application | 9.0 | 445.0 | 6.1 | 681.0 | 529.0 | | 9.91 | 1.9 | 5.22 |

* Prior to 1904 this was a six year rotation of corn, sugar beets, oats, wheat, clover and timothy

TABLE IX.—Results from Manure on a Corn, Oats, Wheat and Clover Rotation, Purdue Farm Experiment Field, 1890-1917

| Treatment Tons of manure per acre per rotation | Average crop yields per acre | | | | | | | Value of increase per acre per year | Tons manure per acre per year | Re- turns per ton of manure |
|---|------------------------------|------------------|-----------------|-------------------------|------------------|--------------------------|-------------------------|--|--|---|
| | Corn bushels | Stover pounds | Oats bushels | Oats straw pounds | Wheat bushels | Wheat straw pounds | Clover hay pounds | | | |
| Nothing | 28.6 | 1844.0 | 27.9 | 1040.0 | 10.7 | 1065.0 | 1679.0 | | | |
| Manure, 14.2 tons | 35.9 | 2452.0 | 35.8 | 1461.0 | 18.5 | 1989.0 | 2457.0 | | | |
| Manure, 8.5 tons | 36.2 | 2404.0 | 38.0 | 1494.0 | 16.7 | 1771.0 | 2282.0 | | | |
| Nothing | 29.2 | 1825.0 | 29.9 | 1097.0 | 10.5 | 1029.0 | 1513.0 | | | |
| Gain for heavy application | 7.1 | 614.0 | 7.2 | 402.0 | 7.9 | 936.0 | 834.0 | \$10.87 | 3.6 | \$3.02 |
| Gain for light application | 7.2 | 572.0 | 8.8 | 416.0 | 6.1 | 730.0 | 714.0 | 9.32 | 2.1 | 4.44 |

DISCUSSION OF TABLES IV TO IX

In the results secured from manure on the Purdue experiment field, presented in Tables IV to IX, inclusive, attention is directed to two principal points: first, the relatively large crop increases produced by the manuring compared with the yields on the untreated land. The small average yields throughout are due to the gravel subsoil and the consequent droughty condition of the land. In seasons of abundant rainfall, the yields have been very satisfactory, while several very dry seasons have caused almost complete crop failures. The leachy and droughty character of the land has doubtless operated against getting the best results from the manure applied. While the crop yields have not been large in any case, on the percentage basis, the manure has produced about 37 per cent. increase as the average for the several crops over the entire period.

The second important point to be observed in these tables is the relatively larger returns secured from the lighter applications of manure. In every case, the lighter manuring has produced the larger returns per ton of manure applied. As a general average for the six systems of cropping, the heavier applications of manure, averaging 4.7 tons per acre per year, have produced crop increases valued at \$16.44 per acre per year, and \$3.53 per ton of manure applied. The lighter applications of manure, averaging 2.7 tons per acre per year, have produced crop increases valued at \$12.99 per acre per year, and \$4.84 per ton of manure applied. The average difference in the value of the produce per ton of manure has been \$1.31 in favor of the lighter rates of manuring.

An examination of the yields produced in the several rotations shows that on the average the normal rate of manuring would have been about 1.8 tons of manure per acre per year, which is considerably less than the so-called "light" application actually used, which averaged 2.7 tons per acre per year.

MANURE EXPERIMENTS ON WILSON FARM AT LAFAYETTE

The Wilson Farm experiment involving a study of the effect of manure is located on Miami silt loam, which fairly represents the greyish so-called "clay" soil common throughout central and northeastern Indiana. The land has been under cultivation for at least two generations but seems to have been fairly well managed and in the later years at least has been more or less manured. The experiment on this field was begun in 1915 after two years of preliminary cropping with corn and soybeans, of which it produced fair crops. Three blocks of similarly treated land are used in the experiment and carry a rotation of corn, wheat and clover. Manure is applied once in three years for the corn crop at the rate of six tons per acre. Both the manured and unmanured land was limed in 1915 at the rate of two tons of ground limestone per acre.

TABLE X.—Results from Manure on a Corn, Wheat and Clover Rotation, Wilson Farm, LaFayette, 1915-1918

| Plot No. | Treatment | Average yields per acre | | | | | Value of increase per acre per year | Tons manure per acre per year | Return per ton of manure |
|----------|-----------------|-------------------------|---------------|-------------------------|--------------|----------------------|-------------------------------------|-------------------------------|--------------------------|
| | | Corn bushels 1915-1917 | Stover pounds | Wheat bushels 1916-1918 | Straw pounds | Hay pounds 1917-1918 | | | |
| 19 | Lime | 35.8 | 3200.0 | 19.1 | 1903.0 | 3560.0 | | | |
| 20 | Lime and manure | 40.3 | 3353.0 | 22.0 | 2033.0 | 3550.0 | | | |
| | Gain for manure | 4.5 | 153.0 | 2.9 | 130.0 | - 10.0 | \$3.66 | 2.0 | \$1.83 |

In Table X are shown the average annual crop yields on the manured and unmanured land, the increases produced by the manure and the financial results. Up to date, three manured corn crops and three wheat and two hay crops following have been harvested. Due to unfavorable seasons the corn yields have been relatively small for this land and the 1917 wheat crop was not what it should have been. So far the showing for manure has not been good, amounting to only \$1.83 per ton of manure applied, but the field observations indicate that it has not yet had a fair chance due to unfavorable seasonal conditions.

MANURE EXPERIMENTS ON THE BEDFORD FIELD

The experiment field at Bedford is located on the Moses Fell Annex Farm on a yellowish-brown silt loam soil typical of most of the upland of Lawrence and neighboring counties. As nearly as could be learned, this land has been cropped for about two generations with little use of manure or fertilizer and had been in meadow for several years. There was a thin growth of timothy, blue grass, red top and broom sedge. Two preliminary crops, one of corn and one of soybeans, were grown on the land after plowing up the sod and before the special treatments were begun. The corn crop made about 25 bushels per acre and the entire crop was removed from the land. The soybeans made only a small growth and the entire crop was plowed under.

There are two experiments involving manure treatments on this field. One is a three-year rotation of corn, wheat and clover begun in 1916 and the other is a four-year rotation of corn, wheat, clover and timothy begun in 1917. The manuring is at the rate of six tons per acre in the three-year rotation and eight tons per acre in the four-year rotation plowed under for corn once in the rotation in both cases.

In Table XI are shown the results so far secured on the manured and untreated land in the corn, wheat and clover rotation. Table XII shows the results in the corn, wheat, clover and timothy rotation.

TABLE XI.—Results from Manure on a Corn, Wheat and Clover Rotation, Bedford Experiment Field, 1916-1918

| Plot No. | Treatment | Average yields per acre | | | | | Value of increase per acre per year | Tons manure per acre per year | Return per ton of manure |
|----------|-----------------|-------------------------|---------------|---------------|--------------|------------|-------------------------------------|-------------------------------|--------------------------|
| | | Corn bushels | Stover pounds | Wheat bushels | Straw pounds | Hay pounds | | | |
| 133 | Nothing | 30.8 | 1730.0 | 1.70 | 260.0 | 780.0 | | | |
| 132 | Manure | 41.2 | 2012.0 | 2.25 | 305.0 | 1160.0 | | | |
| | Gain for manure | 10.4 | 282.0 | 0.55 | 45.0 | 380.0 | \$5.42 | 2.0 | \$2.71 |

TABLE XII.—Results from Manure on a Corn, Wheat, Clover and Timothy Rotation, Bedford Experiment Field, 1917-1918

| Plot No. | Treatment | Average yields per acre | | | | | | Value of increase per acre per year | Tons manure per acre per year | Return per ton of manure |
|----------|-----------------|-------------------------|---------------|--------------------|--------------|-----------------------------|------------------------------|-------------------------------------|-------------------------------|--------------------------|
| | | Corn bushels 1917 | Stover pounds | Wheat bushels 1918 | Straw pounds | Clover hay pounds 1917-1918 | Timothy hay pounds 1917-1918 | | | |
| 14 | Nothing | 29.5 | 1825.0 | 4.50 | 655.0 | 1080.0 | 1430.0 | | | |
| 15 | Manure | 43.7 | 2530.0 | 10.16 | 850.0 | 1540.0 | 2040.0 | | | |
| | Gain for manure | 14.2 | 705.0 | 5.66 | 195.0 | 460.0 | 610.0 | \$9.70 | 2.0 | \$4.85 |

The actual yields on the Bedford field have been small in most cases, due partly to the poor condition of the soil to begin with and partly to unfavorable conditions, but the percentage increase due to manuring has been good, ranging from over 30 to almost 50 per cent. Winter-killing and particularly Hessian fly damage caused almost complete wheat failures in the three-year rotation. The corn and clover crops have suffered considerably from unfavorable weather. However, other experiments alongside show that the manure treatment alone is not all that is required by this soil. More phosphorus than the manure supplies is needed and liming also is essential to the best results. Where manure, lime and acid phosphate were used, the corn yield has been raised to over 60 bushels per acre and the wheat and clover yields have been from four to five times as much as on the untreated land.

MANURE EXPERIMENTS ON THE FRANCISCO FIELD

This field is located near Francisco in Gibson County. The soil is a yellowish-brown silt loam characteristic of the rolling uplands of southwestern Indiana. The land has been under cultivation for many years and so far as could be learned had never been manured. The crops grown are corn, wheat and clover rotated on three series of plots. The land was limed in the fall of 1915 at the rate of three tons of ground limestone per acre. The manuring on this field has been at the rate of eight tons per acre plowed under for corn once in three years. The first application was made in 1916. Two crops of corn, one of wheat and one of clover have been harvested from manured land. The 1917 wheat crop was a total failure, due to fly and winter-killing.

In Table XIII are shown the average annual crop yields on the manured and unmanured land together with the increases produced by the manure and the financial results.

TABLE XIII.—Results from Manure on a Corn, Wheat and Clover Rotation, Francisco Experiment Field, 1916-1918

| Plot No. | Treatment | Average yields per acre | | | | | Value of increase per acre per year | Tons manure per acre per year | Return per ton of manure |
|----------|-----------------|-------------------------|---------------|-------------------------|--------------|-----------------|-------------------------------------|-------------------------------|--------------------------|
| | | Corn bushels 1916-1917 | Stover pounds | Wheat bushels 1917-1918 | Straw pounds | Hay pounds 1918 | | | |
| 2a | Lime | 39.8 | 3590.0 | 8.5 ¹ | 710.0 | 2420.0 | | | |
| 2b | Lime and manure | 53.6 | 4289.0 | 16.7 ¹ | 1545.0 | 3680.0 | | | |
| | Gain for manure | 13.8 | 699.0 | 8.2 | 835.0 | 1260.0 | \$15.66 | 2.66 | \$5.89 |

¹ The low average wheat yield is due to the fact that the 1917 wheat crop was a complete failure due to Hessian fly and winter-killing

The showing made by manure on this field has been good on all three of the crops in the rotation, resulting in \$15.06 per acre per rotation or \$5.89 per ton of manure applied. The corn crop has been increased by one-third; the wheat yield has been practically doubled, and the clover has been increased by one-half.

SOURCES OF WASTE AND LOSS IN FARM MANURES

If we take the average value per ton of manure as shown on the seven fields reported in this bulletin to be fairly representative, and deduct 40 cents per ton for the cost of application, the value of a ton of manure in the barnyard is \$4.60. Based on the 1910 census of live stock in Indiana and the average amount of manure that can be saved from each class of animals, the average production of manure per year in Indiana is 15,690,077 tons after deducting one-fourth of the manure from horses, one-third of that from cattle and one-half of that from sheep and swine, which is either deposited on fields and pastures where there is little loss, or in roads and lanes where its loss cannot be prevented. At \$4.60 per ton, the manure that can be saved from Indiana live stock, according to these estimates, is worth \$72,174,354.20 annually.

It is conservatively estimated that one-third of the manure annually made in the stables and feed lots in the State is lost or wasted by improper methods of conservation and handling. Under present conditions this means an annual loss to the farmers of Indiana of \$26,058,118.06. Practically all of this loss could be prevented by proper methods of management.

Among the more important sources of loss and waste in manures are leakage of the liquids through wooden stable floors, or soaking into the ground in the case of earth floors, muddy feed lots, leaching through exposure to rain in the open, where the liquid runs away into streams or soaks into the ground and is lost, and fermentation and "fire-fanging" in loose piles causing much loss of nitrogen and organic matter.

METHODS OF CONSERVING MANURE

Stables and feed lots should have concrete floors. Practically one-half of the manurial value of the voidings of animals is in the urine, much of which will be lost unless concrete floors are used. At the Ohio Station it was found that the manure from a thousand-pound steer for six months was worth over \$2.00 more when made on a concrete floor than

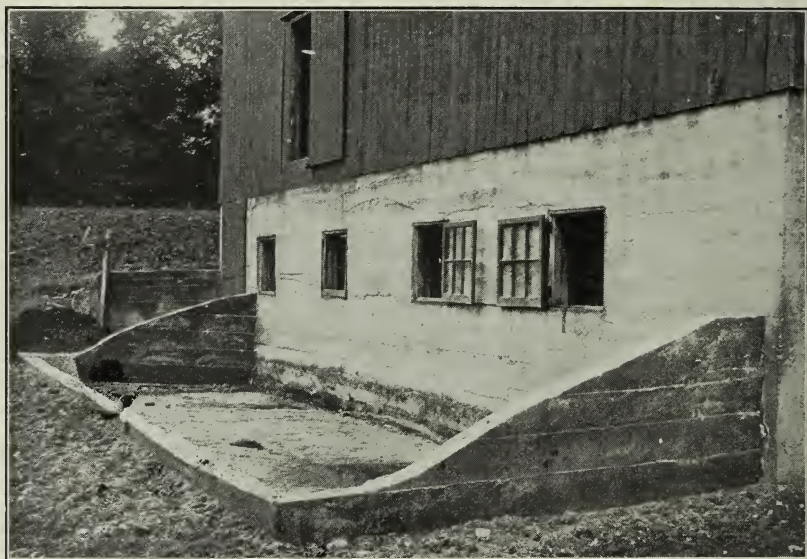


Fig. 6. A concrete manure pit will pay for itself in a short time. Leaching is entirely prevented. By tramping the manure as it is put into the pit, fermentation may be reduced to a minimum

when made on a clay floor. The cost of constructing concrete floors will be paid for in a short time by saving the liquid that would otherwise soak into the ground or drain away. In addition to having concrete floors, enough bedding should be used to absorb all the liquid.

Wherever possible, manure should not be stored for any length of time, but should be hauled out and spread upon the land as rapidly as it is made. Except on very sloping ground when frozen in winter, there

will be practically no loss after the manure is spread. It is not always practical, however, to spread manure as rapidly as it is made. In such cases, provision should be made for storing it in a way to prevent loss as far as possible. The most practical storage place is a concrete pit or enclosure outside of the stable in which the manure can be compactly piled. The pit should be so constructed that the wagon or spreader can be easily loaded from it. Manure should never be thrown out under the eaves of the roof or into loose piles where leaching and fermentation will cause heavy losses. When manure must be piled, it should be thoroughly compacted in perpendicular sided piles kept level or dished on top and built several feet high. Compacting by tramping will exclude air and reduce fermentation. Keeping the pile dished on top will cause rain that falls on it to soak in and further prevent heating. Manure should not be hauled into the field and placed in small piles for spreading later on, as there is certain to be waste through leaching, if not also destructive fermentation. The leachings may be taken up by the soil, but the spot where the pile lies will be made unduly rich. By proper attention to the points discussed above, practically all of the manure losses in Indiana stables and feed lots can be prevented.

THE VALUE OF MANURE

A ton of manure is worth exactly what it will produce in crop increases, minus the labor of handling. Manure may have a certain plant food value or a certain organic matter value under a given set of conditions, but it is not practical to put any set value upon it for all conditions. On one soil the nitrogen content, on another the phosphorus, and on another the potash content may be the important or determining plant food factor in the value of the manure. Likewise, on some soils the organic matter will be more important than on others. A knowledge of the needs of the particular soil is necessary to form anything like a trustworthy estimate of the value of manure applied to it, and the results of experiments under known soil conditions may be very helpful in arriving at just conclusions.

It must be remembered, too, that different lots of manure will vary in composition according to differences in the conditions under which they are made. The quality of the feed, the kind of animals fed, the kind and amount of bedding used, the proportion of the liquid voidings saved, the method of handling and the conditions of storing, all influence the quality and value of the manure. Legume hay and rich concentrated feeds make richer manure than where non-leguminous feeds are used.

TIME, PLACE AND METHOD OF APPLYING MANURE

As has been stated in the discussion of methods of conserving manure, the best time to apply manure is as soon as possible after it is made, in order to prevent losses from fermentation and leaching during storage. Many farmers find it good practice to spread manure on young wheat in the fall or during the winter when the ground is bare and frozen. Such use of manure not only helps the wheat by hastening development in the spring but it also helps to prevent winter-killing by acting as a mulch. It also helps to insure a stand of clover and grass when these

are seeded on the wheat. In the summer time, manure can often be spread on young clover or on second growth clover or on oats stubble to be plowed for wheat. The bulk of the manure, however, can be most satisfactorily spread on land to be planted to corn. The organic matter value of manure can undoubtedly be secured to the fullest extent when it is plowed under or otherwise worked in and allowed to decompose in the soil. When incorporated in the soil, manure has an important effect in furthering beneficial bacterial action. It is good practice to disk the ground after applying manure and before plowing, in order to mix it with the soil and avoid throwing it all into the bottom of the furrow. Fine manure may often be used to advantage as a top dressing on corn and other spring planted crops but the rush of other work usually makes this impracticable.

Among the methods of applying manure, there is nothing better than the manure spreader. Spreading can never be done as uniformly by hand as with the spreader. It is often claimed that two tons of manure applied with a spreader are as effective as three tons spread with a fork.

THE RATE OF MANURING

The normal rate of manuring under practical farm conditions, supposing that all the produce of the land that can be profitably utilized were fed or used for bedding, would be a pound of manure for every pound of air-dried produce, except the wheat grain. Under such conditions, taking the average produce on the manured land in the seven experiment fields reported in this bulletin, the normal full rate of manuring would be two tons of manure per acre per year, or about six tons per acre once in three years on a corn, wheat and clover rotation averaging 50 bushels of corn, 16 bushels of wheat and 3200 pounds of hay per acre. Where the corn stalks are left in the field, the amount of manure that can be made from the three crops mentioned will be reduced to about four tons per acre per rotation.

It will be noted that in the case of the Scottsburg field and the heavier applications on the Purdue field, the rates of manuring have been much heavier than normal. In other words, much more manure has been applied in each round of the rotation than could possibly have been made from the produce of these fields. On the North Vernon, Worthington, Wilson Farm and Francisco fields and in the case of the lighter applications on the Purdue field, the rates of manuring have been more nearly normal, or practically equivalent to the amount of manure that could have been made from the produce. These lighter rates of manuring in all cases have been more profitable per ton of manure than the heavier applications. It follows, therefore, that making the manure serve the whole farm at a normal rate once per rotation, is more economical than using heavier applications at longer intervals or on only a part of the farm.

SUPPLEMENTING MANURE WITH PHOSPHATE

On most Indiana soils, manure is not a well balanced fertilizer. All of our ordinary soils are deficient in phosphorus. Manure is also deficient in this element. It is, therefore, advisable to supplement the manure with phosphatic fertilizers, preferably acid phosphate. As a general farm practice, where the manure is plowed under for corn, the acid phosphate can be most conveniently applied once for the entire rotation by means of a fertilizer attachment on the drill when seeding a small grain crop, using from 200 to 300 pounds per acre, according to the length of the rotation. If preferred, the same result can be accomplished by sprinkling the acid phosphate on top of the manure in the manure spreader, using about 40 or 50 pounds of the phosphate per ton of manure.

Very striking results have been secured by this station from supplementing manure with phosphates on several different soil types. On the North Vernon and Worthington experiment fields, the addition of 200 pounds of acid phosphate to a six-ton application of manure per acre per rotation of corn, wheat and clover has produced additional crop increases valued at \$14.98 and \$21.44, respectively, at a cost of \$2.25 for the phosphate at \$25.00 per ton. At South Bend, under similar conditions of cropping and manuring, the addition of \$5.46 worth of acid phosphate has produced crop increases valued at \$12.52. On the Bedford field several different rates of supplementing manure with acid phosphate have been tried with a six-ton application of manure per acre per rotation of corn, wheat and clover with results as follows: 150 pounds of acid phosphate produced crop increases valued at \$19.64, 300 pounds produced \$25.98, 450 pounds produced \$31.22 and 1000 pounds produced \$57.68 worth of crop increase per acre per rotation over and above the increases produced by the manure.

MANURE AND COMPLETE FERTILIZER

As to whether or not it will pay to use a complete fertilizer in addition to manure, other experiments on several of the fields reported show that this depends upon the condition of the land as regards the supply of organic matter and nitrogen. On the North Vernon field, which is very low in these constituents, the application of 200 pounds per acre of a 2-8-4 fertilizer, on wheat in addition to six tons of manure and 200 pounds of acid phosphate on corn once in three years has paid a profit of \$1.58, while on the other fields, all of which are somewhat better supplied with organic matter and nitrogen, it has not paid.

MANURE VS. FERTILIZER

Another question which arises is to what extent fertilizer can take the place of manure. On the North Vernon and Worthington fields, \$9.13 worth of fertilizer per rotation, consisting of 200 pounds acid phosphate on corn and 200 pounds 2-8-4 on wheat, has produced crop increases worth \$33.36 and \$26.73 respectively, while six tons of manure have produced crop increases worth \$57.00 and \$29.40 respectively. At Scottsburg, \$12.43 worth of 2-8-4 fertilizer has produced crop increases worth \$22.96, while 10 tons of manure have produced crop increases

worth \$51.29. At Bedford \$27.52 worth of fertilizer consisting of 400 pounds per acre of 0-8-4 on corn and 400 pounds of 4-8-4 on wheat in a four-year rotation of corn, wheat, clover and timothy has produced crop increases valued at \$57.03, while eight tons of manure have produced crop increases valued at \$37.06 per acre per rotation. The relative importance of phosphorus is again strikingly illustrated on this field where 800 pounds of 0-8-0 per rotation, costing \$5.12, produced crop increases worth \$50.55, while 800 pounds of 2-8-4 used in the same way and costing \$27.52 produced \$52.54 worth of crop increases. The value of phosphorus, even where land is well manured, is further illustrated in another test where eight tons of manure alone produced crop increases worth \$32.16, while the same amount of manure reinforced with 400 pounds of acid phosphate produced \$63.18 worth of crop increase.

GENERAL RECOMMENDATIONS

Adopt a systematic rotation of crops, including clover or some other legume at least once every three or four years.

Wherever clover fails to do well, apply two or more tons of ground limestone to the acre.

See that the land is properly drained and practice good tillage methods.

Feed as much of the produce as possible and carefully conserve and return to the land the manure produced, as well as any unused crop residues.

Apply from 150 to 200 pounds per acre of acid phosphate or some other available phosphate to each grain crop in the rotation. In a permanent system, where manure is applied for corn, enough phosphate for the whole rotation may be most conveniently applied when seeding wheat or oats. Under certain systems of farming, where the crops are not all fed on the farm, it will pay, under normal conditions, to add some nitrogen and potash in the fertilizer.

If acid phosphate or other available phosphate cannot be secured, a mixed fertilizer as high as possible in available phosphoric acid should be used.

RECENT PURDUE PUBLICATIONS RELATING TO SOIL FERTILITY

Experiment Station Bulletin No. 210. The Value of Phosphates on Indiana Soils.

Experiment Station Bulletin No. 213. The Value of Lime on Indiana Soils.

Experiment Station Circular No. 66. The Lime and Fertilizer Needs of Indiana Soils.

Experiment Station Circular No. 76. Increasing Crop Yields for War Needs.

Experiment Station Circular No. 79. Indiana Soils Need Phosphates.

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Fig. 1. Good management, sanitation and proper vaccination will prevent disease

SO-CALLED MEDICINAL HOG CHOLERA
REMEDIES AND CURES

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The great loss of hogs resulting from outbreaks of hog cholera makes it important that the farmers of Indiana should appreciate the fact that so-called medicinal hog cholera remedies and cures have not been successful in controlling the disease in herds under test.

In compliance with the provisions of the Swine Disease law, 20 different preparations have been tested and of 235 treated hogs 187 died of cholera and of 227 untreated hogs 179 died. This shows that the remedies did not control the disease in either treated or untreated lots.

These facts emphasize the importance of having the exposed or infected herds promptly given the serum-simultaneous method of vaccination by trained veterinarians using high grade serum, rather than to lose time and money experimenting with a so-called medicinal hog cholera remedy or cure.

SO-CALLED MEDICINAL HOG CHOLERA REMEDIES AND CURES

C. H. CLINK

D. B. CLARK

INTRODUCTION

The prevalence of hog cholera in Indiana and neighboring states has been responsible for the introduction and advertising of numerous so-called preventives or cures. Tests carried on by the Station have proved these to be worthless in controlling the disease.

Previous to the enactment of the Swine Disease law in 1913, a great many of these proprietary preparations were advertised widely by agricultural papers and were used largely by farmers and feeders of hogs having outbreaks of hog cholera in their herds.

The prevalence of hog cholera from 1911 to 1915 resulted in the venders of these so-called remedies becoming very active in the State and in order to protect the swine industry, the General Assembly in 1913 passed a law requiring the testing of all preparations claimed to be preventives, remedies or cures for hog cholera, by the Purdue Agricultural Experiment Station. Section 9 of this law is as follows:¹

“Hog Cholera Serum—Test Approved by Purdue University.

Sec. 9. It shall be unlawful for any person, firm or corporation or their agents to sell or dispose of in any way anti-hog-cholera serum or hog-cholera virus, or any other serum or so-called serum or vaccine, or any other remedy, in this state, unless said serum or virus or any other remedy, has been tested and approved by the Purdue University Agricultural Experiment Station, and a permit issued by state veterinarian to said person, firm or corporation or their agents, allowing him or them to sell or use said serums, vaccines or virus or any other remedy for the purpose of vaccinating swine against hog cholera or any infectious disease, or treating swine affected with hog cholera or any infectious disease. Said serum, virus, or so-called serum or vaccine or any other remedy shall meet any test required by said experiment station for potency, protective properties, virulence, or freedom from such organisms as may cause septic infection before the state veterinarian shall issue said permit, and if at any time after said permit has been issued said serum or virus or any other remedy does not meet with such a test for potency, protective properties, virulence or freedom from such organisms as may cause septic infection, said permit shall be revoked by the state veterinarian.”

In compliance with the provisions of this law, generally known as the Swine Disease law, the Veterinary Department of the Station has tested 20 different preparations during the past five years. Duplicate tests were made of three of the preparations, making a total of 23 tests.

¹ Acts—Indiana, 1913, Chapter 135, Sec. 9

Each test, upon completion, was reported promptly and in detail to the State Veterinarian with such recommendations for his action as were warranted by the facts.

Several other preparations than those discussed in this bulletin were offered for sale but upon presentation to their proprietors of a copy of the law, and a request for samples of the material for testing, were in each case withdrawn from sale and claims made in regard to the value in the cure or prevention of hog cholera were discontinued. A great many preparations were offered for testing but it was found impossible to make tests of all on account of lack of funds. The policy of the Station has been to test every so-called remedy which was actually produced and offered for sale, but to refuse to test theoretical formulas, the supposed value of which for the control of hog cholera, their originators wished to have tested.



Fig. 2. The hogs marked X have hog cholera. Experience and tests indicate that the so-called medicinal remedies will not control the disease or prevent its spread to the rest of the herd. Prompt vaccination, using the serum-simultaneous treatment with good serum, is the most satisfactory and profitable method of controlling hog cholera

PLAN

The general plan of testing medicinal mixtures and other preparations advertised or sold as preventives and cures for hog cholera has been as follows: from five to 29 hogs, weighing from 60 to 100 pounds, were used for testing each of the remedies. All of the hogs were exposed to hog cholera by inoculating them with hog cholera blood, or placing them in a cholera infected pen. Part of the hogs were treated with the preparation according to the directions, and the balance was not treated. Daily observations of the conditions, symptoms, and body temperatures of the test lot were made. All were given the same feed and care. The following is a description of each test.

CUNNINGHAM HOG CHOLERA REMEDY

A sample of the Cunningham Hog Cholera Remedy was submitted to Dr. W. E. Coover, former State Veterinarian, who delivered it to the Station for testing purposes.

Thirteen pigs were treated with the preparation according to directions and 13 pigs were left untreated as controls. All but one of the treated pigs died, and all of the control pigs died or were killed when fatal symptoms of hog cholera were shown. All of the dead pigs, both treated and untreated, showed lesions of hog cholera upon post-mortem examination. This remedy was withdrawn from sale.

NATIONAL 23

An advertised preparation for hog cholera known as National 23, sold by the National Breeders Company, Toledo, Ohio, was placed on test October 15, 1913. Seven pigs were treated with the preparation according to directions and six pigs were left as controls. All pigs were placed in infected pens and none of them showed any symptoms of disease, proving they were immune to cholera.

The test was repeated November 19, 1913. Five pigs were used in making the second test of National 23, three being treated and two left as control pigs. All five pigs died and showed lesions of hog cholera upon post-mortem examination, showing that the preparation had no value as a hog cholera preventive or cure.

TABLE I.—Data Obtained in Test of National 23 (first test)

| Hog number | Method of infection | Dose of preparation | Results |
|------------|---------------------|---------------------|---------|
| 777 | pen exposure | 3.8 c.c. | lived |
| 778 | pen exposure | 3.2 c.c. | lived |
| 779 | pen exposure | 3.8 c.c. | lived |
| 780 | pen exposure | 3.9 c.c. | lived |
| 781 | pen exposure | | lived |
| 782 | pen exposure | | lived |
| 783 | pen exposure | | lived |
| 896 | pen exposure | | lived |
| 897 | pen exposure | | lived |
| 898 | pen exposure | | lived |
| 899 | pen exposure | 4.2 c.c. | lived |
| 900 | pen exposure | 3.9 c.c. | lived |
| 901 | pen exposure | 4.0 c.c. | lived |

TABLE II.—Data Obtained in Test of National 23 (second test)

| Hog number | Method of infection | Dose of preparation | Results |
|------------|---------------------|---------------------|--------------------------------|
| 778 | pen exposure | 3.9 c.c. | died 31st day; cholera lesions |
| 779 | pen exposure | 4.2 c.c. | died 17th day; cholera lesions |
| 780 | pen exposure | 3.2 c.c. | died 13th day; cholera lesions |
| 781 | pen exposure | | died 19th day; cholera lesions |
| 782 | pen exposure | | died 11th day; cholera lesions |

U. S. SPECIFIC

A preparation produced by the U. S. Specific Company, Indianapolis, Indiana, which had been widely advertised and sold in the State, was tested on eight pigs, four being treated with the preparation according to the manufacturer's directions, and the remainder left untreated as controls. The test was started January 7, 1914. The preparation furnished was a clear, colorless solution like water in appearance. The test pigs were exposed to pen infection and both treated and control pigs died and showed lesions of hog cholera upon post-mortem examination.

The test showed that the preparation was of no value in curing or preventing hog cholera.

TABLE III.—Data Obtained in Test of U. S. Specific

| Hog number | Method of infection | Dose of preparation | Results |
|------------|---------------------|---------------------|--------------------------------|
| 171 | pen exposure | 3.0 c.c. | died 11th day; cholera lesions |
| 172 | pen exposure | 3.0 c.c. | died 12th day; cholera lesions |
| 173 | pen exposure | 4.5 c.c. | died 20th day; cholera lesions |
| 174 | pen exposure | 3.0 c.c. | died 30th day; cholera lesions |
| 175 | pen exposure | | died 11th day; cholera lesions |
| 176 | pen exposure | | died 17th day; cholera lesions |
| 177 | pen exposure | | died 11th day; cholera lesions |
| 178 | pen exposure | | died 11th day; cholera lesions |

AMERICAN SPECIFIC No. 2

The American Specific Company, Elgin, Illinois, with a branch office at Indiana Harbor, Indiana, produced a preparation called American Specific No. 2, which was guaranteed to immunize hogs previously exposed to hog cholera. A test of this preparation was started January 7, 1914. The material furnished was a clear, colorless liquid resembling water in appearance. Eight pigs were used in the test, four being treated with the preparation according to the manufacturer's directions. One treated pig and one control pig survived the test, all the others dying and exhibiting hog cholera lesions upon post-mortem examination.

The test proved that American Specific No. 2, possessed no curative or preventive properties against hog cholera.

TABLE IV.—Data Obtained in Test of American Specific No. 2

| Hog number | Method of infection | Dose of preparation | Results |
|------------|---------------------|---------------------|--------------------------------|
| 163 | pen exposure | 3.0 c.c. | died 30th day; cholera lesions |
| 164 | pen exposure | 3.2 c.c. | died 28th day; cholera lesions |
| 165 | pen exposure | 3.5 c.c. | died 14th day; cholera lesions |
| 166 | pen exposure | 4.0 c.c. | lived |
| 167 | pen exposure | | died 18th day; cholera lesions |
| 168 | pen exposure | | lived |
| 169 | pen exposure | | died 15th day; cholera lesions |
| 170 | pen exposure | | died 20th day; cholera lesions |

PREPARATION PREPARED BY S. H. COLBERT

A preparation known as Blue Moon Hog Corrector produced by the Blue Moon Stock Corrector Company, Crawfordsville, Indiana, was tested out on eight pigs, four of which were treated with the preparation according to directions (one tablespoonful per pig each day in the feed) and the remaining four pigs were used as controls. The test was begun February 18, 1914. The material was in the form of a white powder. All the test pigs died and showed lesions of hog cholera upon post-mortem examination.

The test proved this preparation to be of no value in curing or preventing hog cholera.

TABLE V.—Data Obtained in Test of Blue Moon Hog Corrector

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------|-----------------------|--------------------------------|
| 339 | pen exposure | treated | died 24th day; cholera lesions |
| 340 | pen exposure | treated | died 25th day; cholera lesions |
| 341 | pen exposure | treated | died 27th day; cholera lesions |
| 342 | pen exposure | treated | died 31st day; cholera lesions |
| 343 | pen exposure | untreated | died 18th day; cholera lesions |
| 344 | pen exposure | untreated | died 18th day; cholera lesions |
| 345 | pen exposure | untreated | died 12th day; cholera lesions |
| 346 | pen exposure | untreated | died 20th day; cholera lesions |

PREPARATION PREPARED BY S. H. COLBERT

A hog cholera preparation prepared by S. H. Colbert of Wheatland, Indiana, was tested on 20 pigs. The test was begun August 3, 1914. Ten pigs received the preparation as per directions and 10 were left untreated as controls. Five pigs in each lot were inoculated with two cubic centimeters each of hog cholera blood and all were placed in infected pens. Seven of the treated pigs and eight of the untreated pigs died, showing extensive lesions of hog cholera upon post-mortem examination.

The result of the test proved the material to be of no value as a hog cholera cure or preventive and the sale of it was discontinued by the proprietor.

The proprietor of this preparation was present and superintended the administration of the material to the treated pigs.

TABLE VI.—Data Obtained in Test of a Preparation Prepared by S. H. Colbert

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------------|-----------------------|--------------------------------|
| 911 | cholera blood inoculation | treated | died 5th day; cholera lesions |
| 912 | cholera blood inoculation | treated | died 8th day; cholera lesions |
| 913 | cholera blood inoculation | treated | died 5th day; cholera lesions |
| 914 | pen exposure | treated | lived |
| 915 | pen exposure | treated | died 9th day; cholera lesions |
| 916 | pen exposure | treated | lived |
| 917 | cholera blood inoculation | treated | died 7th day; cholera lesions |
| 918 | pen exposure | treated | lived |
| 919 | pen exposure | treated | died 8th day; cholera lesions |
| 920 | cholera blood inoculation | treated | died 7th day; cholera lesions |
| 928 | pen exposure | untreated | lived |
| 929 | pen exposure | untreated | died 14th day; cholera lesions |
| 930 | cholera blood inoculation | untreated | died 11th day; cholera lesions |
| 931 | pen exposure | untreated | lived |
| 932 | cholera blood inoculation | untreated | died 8th day; cholera lesions |
| 933 | cholera blood inoculation | untreated | died 11th day; cholera lesions |
| 934 | pen exposure | untreated | died 9th day; cholera lesions |
| 935 | pen exposure | untreated | died 15th day; cholera lesions |
| 936 | cholera blood inoculation | untreated | died 12th day; cholera lesions |
| 937 | cholera blood inoculation | untreated | died 14th day; cholera lesions |

CROSIER'S HOG CHOLERA CURE

A preparation known as Crosier's Hog Cholera Cure, manufactured by the Crosier's Stock and Poultry Powder Company, New Albany, Indiana, was tested on 20 pigs, 10 of which received the preparation as per directions and the others left as control pigs. All of the pigs showed abnormal temperatures on the first day of the test. This material was put on test August 4, 1914. Five pigs in each lot were inoculated with two cubic centimeters of hog cholera blood each and all of them placed in infected pens. Seven in each lot died and exhibited lesions of hog cholera upon post-mortem examination, and three in each lot recovered. The directions on the label were as follows:

"Give a tablespoonful to each hog twice a day in soft feed or slop, but if they are too sick to eat, drench them by mixing the medicine in a drenching bottle with water, then roll the animal on its back and it can be drenched very easily, and in cases of over-feeding or when they are off their feed, give once or twice a day, and when disease is in the herd give to all alike morning and evening, as this prevents those that are apparently healthy from taking the disease."

The result of the test showed the remedy to be without value in curing or preventing hog cholera.

TABLE VII.—Data Obtained in Test of Crosier's Hog Cholera Cure

| Hog number | Method of infection | Treated and untreated | Results |
|------------------|---------------------------|-----------------------|--------------------------------|
| 901 | pen exposure | treated | lived |
| 902 ¹ | pen exposure | treated | died 7th day; cholera lesions |
| 903 | cholera blood inoculation | treated | died 7th day; cholera lesions |
| 904 | pen exposure | treated | died 10th day; cholera lesions |
| 905 | cholera blood inoculation | treated | lived |
| 906 | cholera blood inoculation | treated | lived |
| 907 | cholera blood inoculation | treated | died 8th day; cholera lesions |
| 908 | pen exposure | treated | died 13th day; cholera lesions |
| 909 | cholera blood inoculation | treated | died 10th day; cholera lesions |
| 910 ¹ | pen exposure | treated | died 5th day; cholera lesions |
| 948 | cholera blood inoculation | untreated | died 10th day; cholera lesions |
| 944 | cholera blood inoculation | untreated | lived |
| 942 ¹ | cholera blood inoculation | untreated | died 8th day; cholera lesions |
| 946 | cholera blood inoculation | untreated | died 10th day; cholera lesions |
| 943 ¹ | cholera blood inoculation | untreated | died 10th day; cholera lesions |
| 940 | pen exposure | untreated | lived |
| 949 | pen exposure | untreated | died 8th day; cholera lesions |
| 945 | pen exposure | untreated | died 8th day; cholera lesions |
| 947 ¹ | pen exposure | untreated | lived |
| 938 ¹ | pen exposure | untreated | died 14th day; cholera lesions |

¹ Hogs Nos. 902, 910, 942, 943, 947 and 938 had abnormal body temperatures the first day of the test

VAXALL

A preparation known as Vaxall prepared by Drs. Parrett and Montoux of Indianapolis, was tested, beginning August 3, 1914, and extending to August 22. The proprietors of this material were present and administered their preparation. Ten treated pigs and 10 control pigs were used, five in each lot being inoculated with one cubic centimeter of hog cholera blood each, and the others received pen exposure. Four of the controls and five of the treated pigs died. On account of the number of control pigs remaining alive at the conclusion of the test, it was deemed advisable to duplicate the test as a partial immunity was indicated in the pigs used.

A second test of the Vaxall preparation was started on August 19, 1914, and continued until September 9, 1914.

Drs. Parrett and Montoux, the proprietors of this preparation, were present and personally administered the material.

Twenty pigs were used, 10 being treated and 10 used as controls. Several pigs showed abnormal temperatures when placed on test. Five of the treated pigs and five of the control pigs were injected with one cubic centimeter of hog cholera blood each and the others subjected to pen exposure. Three of the treated pigs and three of the control pigs that received one cubic centimeter of the virus died and two in each lot lived. One of the treated pigs and three of the control pigs that received pen exposure died. In all, six of the 10 treated pigs and four of the control pigs lived.

The two tests showed that Vaxall was not a remedy or preventive for hog cholera. Inquiries later in regard to Vaxall from other states

gave the information that the preparation was being sold and recommended for the cure and prevention of hog cholera in other sections, especially in the South.

TABLE VIII.—Data Obtained in Test of Vaxall (first test)

| Hog number | Method of infection | Treated and untreated | Results |
|------------------|---------------------------|-----------------------|--------------------------------|
| 602 ¹ | cholera blood inoculation | untreated | lived |
| 603 ¹ | cholera blood inoculation | untreated | died 8th day; cholera lesions |
| 604 | cholera blood inoculation | untreated | lived |
| 605 | cholera blood inoculation | untreated | lived |
| 606 | cholera blood inoculation | untreated | died 7th day; cholera lesions |
| 607 | pen exposure | untreated | lived |
| 608 | pen exposure | untreated | lived |
| 609 ¹ | pen exposure | untreated | died 6th day; cholera lesions |
| 610 | pen exposure | untreated | died 8th day; cholera lesions |
| 611 | pen exposure | untreated | lived |
| 701 | cholera blood inoculation | treated | lived |
| 702 | cholera blood inoculation | treated | lived |
| 703 | cholera blood inoculation | treated | lived |
| 704 | cholera blood inoculation | treated | lived |
| 705 | cholera blood inoculation | treated | died 12th day; cholera lesions |
| 706 ¹ | pen exposure | treated | died 8th day; cholera lesions |
| 707 ¹ | pen exposure | treated | died 13th day; cholera lesions |
| 708 | pen exposure | treated | lived |
| 709 | pen exposure | treated | died 16th day; cholera lesions |
| 710 | pen exposure | treated | died 13th day; cholera lesions |

¹ Hogs Nos. 602, 603, 609, 706 and 707 had abnormal body temperatures the first day of the test

TABLE IX.—Data Obtained in Test of Vaxall (second test)

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------------|-----------------------|--------------------------------|
| 528 | cholera blood inoculation | treated | lived |
| 529 | cholera blood inoculation | treated | lived |
| 530 | cholera blood inoculation | treated | died 17th day; cholera lesions |
| 531 | cholera blood inoculation | treated | died 21st day; cholera lesions |
| 532 | cholera blood inoculation | treated | died 14th day; cholera lesions |
| 533 | pen exposure | treated | lived |
| 534 | pen exposure | treated | lived |
| 535 | pen exposure | treated | lived |
| 536 | pen exposure | treated | lived |
| 537 | pen exposure | treated | died 23rd day; cholera lesions |
| 538 | cholera blood inoculation | untreated | lived |
| 539 | cholera blood inoculation | untreated | died 10th day; cholera lesions |
| 540 | cholera blood inoculation | untreated | died 9th day; cholera lesions |
| 541 | cholera blood inoculation | untreated | lived |
| 542 | cholera blood inoculation | untreated | died 21st day; cholera lesions |
| 543 | pen exposure | untreated | died 10th day; cholera lesions |
| 544 | pen exposure | untreated | died 11th day; cholera lesions |
| 545 | pen exposure | untreated | lived |
| 546 | pen exposure | untreated | lived |
| 547 | pen exposure | untreated | died 10th day; cholera lesions |

PREPARATION PREPARED BY A. J. KEUBLER

A preparation produced and sold by A. J. Keubler, Mt. Vernon, Indiana, was tested on 20 pigs. The proprietor was present and administered the material on August 19, 1914. Ten pigs were treated with the remedy and 10 were left untreated as control pigs. Five pigs in each lot received one cubic centimeter of hog cholera blood each, intramuscularly, and the others were subjected to pen exposure. Seven treated pigs and seven control pigs died and showed lesions of hog cholera upon post-mortem examination and six pigs survived.

The test showed the preparation to be without value as a cure or preventive for hog cholera.

TABLE X.—Data Obtained in Test of a Preparation Prepared by A. J. Keubler

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------------|-----------------------|--------------------------------|
| 505 | cholera blood inoculation | treated | died 11th day; cholera lesions |
| 506 | cholera blood inoculation | treated | died 20th day; cholera lesions |
| 507 | cholera blood inoculation | treated | died 23rd day; cholera lesions |
| 508 | cholera blood inoculation | treated | lived |
| 509 | cholera blood inoculation | treated | lived |
| 510 | pen exposure | treated | died 9th day; cholera lesions |
| 511 | pen exposure | treated | died 11th day; cholera lesions |
| 512 | pen exposure | treated | died 16th day; cholera lesions |
| 513 | pen exposure | treated | lived |
| 514 | pen exposure | treated | died 14th day; cholera lesions |
| 516 | cholera blood inoculation | untreated | died 21st day; cholera lesions |
| 517 | cholera blood inoculation | untreated | lived |
| 518 | cholera blood inoculation | untreated | died 14th day; cholera lesions |
| 519 | cholera blood inoculation | untreated | died 18th day; cholera lesions |
| 520 | cholera blood inoculation | untreated | lived |
| 521 | cholera blood inoculation | untreated | died 8th day; cholera lesions |
| 522 | pen exposure | untreated | lived |
| 523 | pen exposure | untreated | died 11th day; cholera lesions |
| 525 | pen exposure | untreated | died 10th day; cholera lesions |
| 526 | pen exposure | untreated | died 14th day; cholera lesions |

544

A test was made on a widely advertised material known as 544, produced by the Thiele Laboratories, Columbus, Ohio, beginning December 21, 1914.

Eighteen pigs were used, 10 receiving the preparation according to the manufacturer's directions, each pig receiving 10 cubic centimeters of it injected intramuscularly, and the remaining eight pigs left untreated as controls. Five treated pigs were injected with one cubic centimeter of hog cholera blood each and four control pigs were subjected to pen exposure. All the pigs in the test died or were killed and showed lesions of hog cholera upon post-mortem examination.

A second test starting January 18, 1915, was made, in which 21 pigs were used, 10 pigs receiving the preparation according to directions and 11 pigs were used as controls. Five treated pigs and six control pigs

received one cubic centimeter of hog cholera blood each, injected intramuscularly and the others were subjected to pen exposure. All the pigs except Nos. 205 and 217 used in the test died or were killed after exhibiting fatal symptoms of hog cholera.

These two tests showed the material to be without value as a hog cholera cure or preventive. Tests made at other state experiment stations, notably in Iowa, Kentucky and Ohio, gave the same results. Although these tests showed that 544 is not a preventive or cure for hog cholera, the remedy was advertised for sale by one of the leading agricultural papers in the country, although notified regarding the results of these tests. None of the Indiana farm papers advertised this preparation.

TABLE XI.—Data Obtained in Test of 544 (first test)

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------------|-----------------------|----------------------------------|
| 941 | cholera blood inoculation | treated | killed 10th day; cholera lesions |
| 443 | cholera blood inoculation | treated | killed 10th day; cholera lesions |
| 944 | cholera blood inoculation | treated | killed 10th day; cholera lesions |
| 945 | cholera blood inoculation | treated | killed 10th day; cholera lesions |
| 946 | cholera blood inoculation | treated | killed 10th day; cholera lesions |
| 947 | pen exposure | treated | died 14th day; cholera lesions |
| 949 | pen exposure | treated | died 14th day; cholera lesions |
| 950 | pen exposure | treated | died 18th day; cholera lesions |
| 952 | pen exposure | treated | died 14th day; cholera lesions |
| 953 | pen exposure | treated | died 16th day; cholera lesions |
| 954 | cholera blood inoculation | untreated | killed 8th day; cholera lesions |
| 955 | cholera blood inoculation | untreated | killed 10th day; cholera lesions |
| 956 | cholera blood inoculation | untreated | killed 10th day; cholera lesions |
| 958 | cholera blood inoculation | untreated | killed 9th day; cholera lesions |
| 959 | pen exposure | untreated | died 17th day; cholera lesions |
| 960 | pen exposure | untreated | died 16th day; cholera lesions |
| 962 | pen exposure | untreated | died 18th day; cholera lesions |
| 963 | pen exposure | untreated | died 20th day; cholera lesions |

TABLE XII.—Data Obtained in Test of 544 (second test)

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------------|-----------------------|----------------------------------|
| 205 | pen exposure | treated | lived |
| 206 | pen exposure | treated | killed 9th day; cholera lesions |
| 207 | pen exposure | treated | died 24th day; cholera lesions |
| 208 | pen exposure | treated | died 12th day; cholera lesions |
| 209 | pen exposure | treated | died 11th day; cholera lesions |
| 210 | cholera blood inoculation | treated | killed 10th day; cholera lesions |
| 211 | cholera blood inoculation | treated | killed 10th day; cholera lesions |
| 212 | cholera blood inoculation | treated | killed 10th day; cholera lesions |
| 213 | cholera blood inoculation | treated | killed 9th day; cholera lesions |
| 214 | cholera blood inoculation | treated | died 12th day; cholera lesions |
| 215 | pen exposure | untreated | died 14th day; cholera lesions |
| 216 | pen exposure | untreated | died 19th day; cholera lesions |
| 217 | pen exposure | untreated | lived |
| 218 | pen exposure | untreated | died 13th day; cholera lesions |
| 219 | pen exposure | untreated | died 13th day; cholera lesions |
| 220 | cholera blood inoculation | untreated | killed 9th day; cholera lesions |
| 221 | cholera blood inoculation | untreated | died 11th day; cholera lesions |
| 222 | cholera blood inoculation | untreated | killed 8th day; cholera lesions |
| 223 | cholera blood inoculation | untreated | killed 8th day; cholera lesions |
| 224 | cholera blood inoculation | untreated | died 12th day; cholera lesions |
| 247 | cholera blood inoculation | untreated | died 13th day; cholera lesions |

PORCINE

A sample of a preparation recommended for the treatment of hog cholera produced by the Porcine Remedy Company, Marion, Ohio, was secured and tested on 20 pigs, 10 of which were injected with one cubic centimeter of hog cholera virus each and 10 exposed to pen infection. All of the treated pigs and eight of the control pigs died and showed extensive lesions of hog cholera upon post-mortem examination.

The material known as Porcine is a red liquid that is injected intramuscularly in 20 cubic centimeter doses. The pigs used averaged about 70 pounds in weight.

The preparation was shown upon test to be without value as a cure or preventive for hog cholera and the manufacturers discontinued selling it in Indiana.

The test began January 7 and ended January 25, 1915.

TABLE XIII.—Data Obtained in Test of Porcine

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------------|-----------------------|--------------------------------|
| Y- 9 | pen exposure | untreated | died 14th day; cholera lesions |
| Y-10 | pen exposure | untreated | lived |
| Y-11 | pen exposure | untreated | lived |
| Y-12 | pen exposure | untreated | died 10th day; cholera lesions |
| Y-13 | pen exposure | untreated | died 13th day; cholera lesions |
| Y-14 | cholera blood inoculation | untreated | died 13th day; cholera lesions |
| Y-15 | cholera blood inoculation | untreated | died 8th day; cholera lesions |
| Y-16 | cholera blood inoculation | untreated | died 9th day; cholera lesions |
| Y-17 | cholera blood inoculation | untreated | died 9th day; cholera lesions |
| Y-18 | cholera blood inoculation | untreated | died 9th day; cholera lesions |
| Y-19 | pen exposure | treated | died 13th day; cholera lesions |
| Y-20 | pen exposure | treated | died 17th day; cholera lesions |
| Y-21 | pen exposure | treated | died 18th day; cholera lesions |
| Y-22 | pen exposure | treated | died 21st day; cholera lesions |
| Y-23 | pen exposure | treated | died 20th day; cholera lesions |
| Y-24 | cholera blood inoculation | treated | died 10th day; cholera lesions |
| Y-25 | cholera blood inoculation | treated | died 12th day; cholera lesions |
| Y-26 | cholera blood inoculation | treated | died 14th day; cholera lesions |
| Y-27 | cholera blood inoculation | treated | died 10th day; cholera lesions |
| Y-28 | cholera blood inoculation | treated | died 12th day; cholera lesions |

JOHN DOBRY'S REMEDY

A preparation manufactured by the John Dobry Manufacturing Company, Cedar Rapids, Iowa, was tested on 20 pigs, 10 being treated with the material according to the directions of the manufacturer and 10 used as controls. The preparation was placed on test January 18, 1915. Five of the treated pigs and five of the control pigs were injected with one cubic centimeter of hog cholera blood each and 10 were subjected to pen exposure. On the twenty-first day of the test, four of the treated pigs and seven of the control pigs were alive and these were given one cubic centimeter of hog cholera blood each. Six days later pig No. 230 died, showing lesions of hog cholera. This was one of the treated pigs subjected to pen exposure. In all, seven treated pigs and three control pigs died.

A statement made by the manufacturers in advertising was as follows: "The Dobry Hog Remedy is the first and only positive cure and preventive known to the world. It cures and prevents so-called hog cholera in its first stages, cures thumps, cough, scours, and sick suckling pigs, makes sows bring strong, healthy pigs, and makes pigs grow rapidly, and is 100 per cent better as preventive or cure than the serum treatment."

The test of this remedy proved that it was not a cure or preventive for hog cholera and could not be recommended for a license in Indiana.

TABLE XIV.—Data Obtained in Test of John Dobry's Remedy

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------------|-----------------------|--------------------------------|
| Y-205 | cholera blood inoculation | treated | died 11th day; cholera lesions |
| Y-226 | cholera blood inoculation | treated | died 11th day; cholera lesions |
| Y-227 | cholera blood inoculation | treated | lived |
| Y-228 | cholera blood inoculation | treated | died 13th day; cholera lesions |
| Y-229 | cholera blood inoculation | treated | died 11th day; cholera lesions |
| Y-230 | pen exposure | treated | died 27th day; cholera lesions |
| Y-231 | pen exposure | treated | died 15th day; cholera lesions |
| Y-233 | pen exposure | treated | died 14th day; cholera lesions |
| Y-234 | pen exposure | treated | lived |
| Y-235 | pen exposure | treated | lived |
| Y-236 | pen exposure | untreated | lived |
| Y-237 | cholera blood inoculation | untreated | lived |
| Y-238 | pen exposure | untreated | lived |
| Y-239 | pen exposure | untreated | lived |
| Y-241 | pen exposure | untreated | lived |
| Y-242 | cholera blood inoculation | untreated | lived |
| Y-243 | cholera blood inoculation | untreated | died 16th day; cholera lesions |
| Y-244 | cholera blood inoculation | untreated | lived |
| Y-245 | cholera blood inoculation | untreated | died 11th day; cholera lesions |
| Y-246 | cholera blood inoculation | untreated | died 11th day; cholera lesions |

PERRY'S SWINE LIXIR

Perry's Swine Lixir was submitted by the Swine Elixir Mfg. Co., Moultrie, Ga. The test was begun October 7, 1915 and 15 pigs were used in the test, eight being treated with the remedy and seven used as controls. The pigs were exposed to the disease by placing them in a cholera-infected pen and the preparation administered according to directions, one teaspoonful per hog twice weekly. All the control pigs and all but one of the treated pigs died after showing fatal symptoms of disease.

The results of the test show that this preparation is without value as a remedy for hog cholera.

TABLE XV.—Data obtained in Test of Perry's Swine Lixir

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------|-----------------------|--------------------------------|
| Y-41 | pen exposure | treated | lived |
| Y-43 | pen exposure | treated | died 15th day; cholera lesions |
| Y-46 | pen exposure | treated | died 16th day; cholera lesions |
| Y-47 | pen exposure | treated | died 16th day; cholera lesions |
| Y-50 | pen exposure | treated | died 17th day; cholera lesions |
| Y-51 | pen exposure | treated | died 14th day; cholera lesions |
| Y-52 | pen exposure | treated | died 15th day; cholera lesions |
| Y-53 | pen exposure | treated | died 16th day; cholera lesions |
| Y-42 | pen exposure | untreated | died 17th day; cholera lesions |
| Y-44 | pen exposure | untreated | died 19th day; cholera lesions |
| Y-45 | pen exposure | untreated | died 20th day; cholera lesions |
| Y-48 | pen exposure | untreated | died 18th day; cholera lesions |
| Y-49 | pen exposure | untreated | died 20th day; cholera lesions |
| Y-54 | pen exposure | untreated | died 13th day; cholera lesions |
| Y-55 | pen exposure | untreated | died 16th day; cholera lesions |

PURITAN TABLETS

John G. Taylor, Hotel DeSoto, New Orleans, La., recommended a preparation known as Puritan Tablets. The remedy had not been sold or advertised in Indiana. These tablets were fed to the treated pigs as directed, 20 tablets in slop feed once a day, beginning October 12, 1915.

Twenty pigs were used in the test, 10 being treated and 10 left untreated as controls. Two of the treated pigs and three of the controls survived. Mr. Taylor was present at intervals but did not superintend the test.

TABLE XVI.—Data Obtained in Test of Puritan Tablets

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------|-----------------------|--------------------------------|
| Y-56 | pen exposure | treated | died 18th day; cholera lesions |
| Y-57 | pen exposure | treated | died 18th day; cholera lesions |
| Y-59 | pen exposure | treated | lived |
| Y-61 | pen exposure | treated | died 20th day; cholera lesions |
| Y-63 | pen exposure | treated | died 11th day; cholera lesions |
| Y-64 | pen exposure | treated | died 16th day; cholera lesions |
| Y-65 | pen exposure | treated | died 11th day; cholera lesions |
| Y-66 | pen exposure | treated | died 16th day; cholera lesions |
| Y-69 | pen exposure | treated | lived |
| Y-70 | pen exposure | treated | died 13th day; cholera lesions |
| Y-58 | pen exposure | untreated | died 31st day; cholera lesions |
| Y-60 | pen exposure | untreated | died 17th day; cholera lesions |
| Y-62 | pen exposure | untreated | died 18th day; cholera lesions |
| Y-67 | pen exposure | untreated | died 18th day; cholera lesions |
| Y-68 | pen exposure | untreated | died 21st day; cholera lesions |
| Y-72 | pen exposure | untreated | lived |
| Y-73 | pen exposure | untreated | died 20th day; cholera lesions |
| Y-74 | pen exposure | untreated | lived |
| Y-75 | pen exposure | untreated | lived |
| Y-77 | pen exposure | untreated | died 15th day; cholera lesions |

CAL-SINO HOG RESTORATIVE

A preparation named Cal-Sino Hog Restorative and manufactured by the Cal-Sino Company, Inc., Baltimore, Maryland, was placed on test with 29 pigs, 15 of which were treated with the material according to the manufacturer's directions and 14 pigs were used as controls. The test was begun September 29, 1916.

The material is a brownish powder and the recommendations accompanying it call for a daily dose of a heaping tablespoonful of the remedy, mixed with ground feed, for each 200 pounds live weight. The literature advertising the preparation makes no direct statement that the remedy will prevent or cure hog cholera, but the statements made are so worded as to lead the reader to understand that the preparation is effective in curing or preventing the disease.

On the cover of a booklet describing this material is printed:

"How you can prevent and cure cholera with Cal-Sino Hog Restorative and get your pork production up to the top notch."

All of the test pigs were killed when fatal symptoms of hog cholera were exhibited, from the fourth to the eighth day. Several of these pigs showed high body temperatures the day the test was started. The average maximum temperature between the first and fifth days of this lot of pigs was 104.7 degrees.

The result of the test proved that hog cholera cannot be cured by using Cal-Sino Hog Restorative.

TABLE XVII.—Data Obtained in Test of Cal-Sino Hog Restorative

| Hog number | Method of infection | Treated and untreated | Results |
|------------------|---------------------|-----------------------|----------------------------------|
| 395 | pen exposure | untreated | killed 4th day; cholera lesions |
| 396 | pen exposure | untreated | killed 8th day; cholera lesions |
| 397 | pen exposure | untreated | killed 5th day; cholera lesions |
| 398 | pen exposure | untreated | killed 7th day; cholera lesions |
| 399 | pen exposure | untreated | killed 7th day; cholera lesions |
| 400 | pen exposure | untreated | killed 7th day; cholera lesions |
| 403 | pen exposure | untreated | killed 7th day; cholera lesions |
| 404 ¹ | pen exposure | untreated | killed 4th day; cholera lesions |
| 405 | pen exposure | untreated | killed 7th day; cholera lesions |
| 406 | pen exposure | untreated | killed 7th day; cholera lesions |
| 407 | pen exposure | untreated | killed 7th day; cholera lesions |
| 408 | pen exposure | untreated | killed 7th day; cholera lesions |
| 409 | pen exposure | untreated | killed 7th day; cholera lesions |
| 410 | pen exposure | untreated | killed 10th day; cholera lesions |
| 426 ¹ | pen exposure | treated | killed 6th day; cholera lesions |
| 427 | pen exposure | treated | killed 7th day; cholera lesions |
| 428 | pen exposure | treated | killed 7th day; cholera lesions |
| 429 ¹ | pen exposure | treated | killed 7th day; cholera lesions |
| 430 | pen exposure | treated | killed 6th day; cholera lesions |
| 431 | pen exposure | treated | killed 8th day; cholera lesions |
| 432 | pen exposure | treated | killed 7th day; cholera lesions |
| 433 ¹ | pen exposure | treated | killed 4th day; cholera lesions |
| 434 | pen exposure | treated | killed 6th day; cholera lesions |
| 435 | pen exposure | treated | killed 7th day; cholera lesions |
| 436 ¹ | pen exposure | treated | killed 6th day; cholera lesions |
| 437 | pen exposure | treated | killed 7th day; cholera lesions |
| 438 | pen exposure | treated | killed 7th day; cholera lesions |
| 439 | pen exposure | treated | killed 7th day; cholera lesions |
| 440 ¹ | pen exposure | treated | killed 6th day; cholera lesions |

¹ Hogs Nos. 404, 426, 429, 433, 436 and 440 had abnormal body temperatures the first day of the test

BOURBON REMEDY

A sample of Bourbon Remedy manufactured by the Bourbon Remedy Company, Lexington, Kentucky, was secured from a distributor and tested on 20 pigs, 10 of which were treated with the preparation according to directions and 10 remained as control pigs. The test was started April 3, 1916. All the pigs were subjected to pen exposure. Six of the treated pigs and eight of the control pigs died and exhibited lesions of hog cholera upon post-mortem examination.

The literature of the manufacturer makes the following statements:

"One cholera germ divides into four germs in twenty minutes. These again subdivide into sixteen others in twenty minutes, so that if this rate

is steadily maintained, a single germ becomes four thousand in two hours, and one thousand billions in ten hours. An animal affected with cholera is literally 'eaten up alive' by these germs. Filling the intestines in countless numbers, their ravages in two or three days so disarrange the system that the secretion of gastric juice is suspended, and the germs reenter the stomach in safety; then follows vomiting, collapse and death.

Special Instructions

Cholera in hogs is similar to typhoid fever in human beings. In treating this disease the care and nursing of the sick is fully as important as the administering of medicines.

The infected animals should be provided with clean, dry, comfortable quarters. To prevent over-heating by crowding and subsequent chilling, the animals should be separated as much as possible and not more than three or four should be kept in each pen or stall. The disease produces an intense thirst and if allowed free access to water, the animals will swill it and thus dilute and weaken the gastric juice which is their natural and only defense against the cholera germ. If too much food is given them the gastric juice will be used up for digestion purposes and a sufficient excess will not be available for destroying the cholera bacilli. Therefore, cholera infected hogs should be kept confined where they can get no food or drink except that which is given them. As the disease progresses, ulcers and lesions are formed in the animal's intestines and the irritation produced by the passage of partly digested food causes violent diarrhea. Corn, or other solid food, given to the hogs at this stage of the disease aggravates this condition and causes death by rupture of the bowels.

The exercise of a little common sense in caring for cholera infected animals and protecting them from exposure to unfavorable conditions and a regular and careful treatment with Bourbon Hog Cholera Remedy before the disease has gone too far, will produce remarkably satisfactory results.

The dose of this medicine for a sick hog is one (1) tablespoonful, diluted in as much milk or gruel as the hog will drink, and each and every hog in cholera infected herds should be given this amount of medicine twice a day morning and evening.

From ten days to two weeks is required to effect a cure, according to the virulence of the disease and the condition of the animals when treatment is begun."

The result of the test shows that this medicinal preparation is neither a cure or preventive for hog cholera.

TABLE XVIII.—Data Obtained in Test of Bourbon Remedy

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------|-----------------------|--------------------------------|
| Y-543 | pen exposure | treated | died 13th day; cholera lesions |
| Y-544 | pen exposure | treated | died 15th day; cholera lesions |
| Y-545 | pen exposure | treated | lived |
| Y-546 | pen exposure | treated | lived |
| Y-547 | pen exposure | treated | lived |
| Y-548 | pen exposure | treated | died 23rd day; cholera lesions |
| Y-549 | pen exposure | treated | lived |
| Y-550 | pen exposure | treated | died 11th day; cholera lesions |
| Y-551 | pen exposure | treated | died 18th day; cholera lesions |
| Y-552 | pen exposure | treated | died 13th day; cholera lesions |
| Y-553 | pen exposure | untreated | died 13th day; cholera lesions |
| Y-554 | pen exposure | untreated | died 13th day; cholera lesions |
| Y-555 | pen exposure | untreated | died 11th day; cholera lesions |
| Y-556 | pen exposure | untreated | lived |
| Y-557 | pen exposure | untreated | died 11th day; cholera lesions |
| Y-558 | pen exposure | untreated | died 11th day; cholera lesions |
| Y-559 | pen exposure | untreated | lived |
| Y-560 | pen exposure | untreated | died 10th day; cholera lesions |
| Y-561 | pen exposure | untreated | died 11th day; cholera lesions |
| Y-562 | pen exposure | untreated | died 11th day; cholera lesions |

POSALTI

A preparation known as Posalti recommended by Frank J. Cosgrove, South Bend, Indiana, was tested, using 20 pigs, 10 of which were treated and 10 used as controls. The test was begun April 4, 1916. The pigs were subjected to pen exposure, being placed in cholera infected pens. Mr. Cosgrove was present, administered his material and superintended the feeding of the pigs. When the treated pigs refused feed, he tried drenching them with the remedy, and pigs Nos. 574, 578, 579, and 580 died as a result of the drench going into the lungs. On post-mortem, however, these pigs showed the usual lesions of hog cholera. The control pigs were killed when fatal symptoms of hog cholera were evident and the treated pigs were allowed to die. The directions furnished by the producers were as follows:

"Administer in each feed one-half ounce of Posalti remedy per hog. Feed one-third pound middlings mixed with two quarts of skimmed milk preferred. If skimmed milk can not be obtained two quarts of tepid water can be used. Feed 3 times daily—8 A. M., 12 M., and 4 P. M.

After two weeks of Posalti treatment, begin to give a little more solid food with the slop or soft food and increase gradually to proper proportion of solid foods.

If hogs will not eat, set them on rear end, pry mouth open with stick, pour $1\frac{1}{2}$ pints of water containing $1\frac{1}{2}$ ozs. of Posalti into hog."

All treated pigs died from the ninth to the thirteenth days, and seven of the control pigs were killed when fatal symptoms of hog cholera appeared. Three control pigs survived.

The result of the test shows that Posalti is not a cure or preventive for hog cholera.

TABLE XIX.—Data Obtained in Test of Posalti

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------|-----------------------|----------------------------------|
| Y-563 | pen exposure | untreated | killed 10th day; cholera lesions |
| Y-564 | pen exposure | untreated | killed 13th day; cholera lesions |
| Y-565 | pen exposure | untreated | killed 11th day; cholera lesions |
| Y-566 | pen exposure | untreated | killed 11th day; cholera lesions |
| Y-567 | pen exposure | untreated | lived |
| Y-568 | pen exposure | untreated | lived |
| Y-569 | pen exposure | untreated | killed 11th day; cholera lesions |
| Y-570 | pen exposure | untreated | killed 11th day; cholera lesions |
| Y-571 | pen exposure | untreated | killed 11th day; cholera lesions |
| Y-572 | pen exposure | untreated | lived |
| Y-573 | pen exposure | treated | died 9th day; cholera lesions |
| Y-574 | pen exposure | treated | died 11th day; cholera lesions |
| Y-575 | pen exposure | treated | died 10th day; cholera lesions |
| Y-576 | pen exposure | treated | died 10th day; cholera lesions |
| Y-577 | pen exposure | treated | died 10th day; cholera lesions |
| Y-578 | pen exposure | treated | died 11th day; cholera lesions |
| Y-579 | pen exposure | treated | died 11th day; cholera lesions |
| Y-580 | pen exposure | treated | died 13th day; cholera lesions |
| Y-581 | pen exposure | treated | died 12th day; cholera lesions |
| Y-582 | pen exposure | treated | died 10th day; cholera lesions |

PREPARATION PREPARED BY H. W. METZLER

A preparation prepared by H. W. Metzler, Champaign, Illinois, was tested on 20 pigs, 10 of which were treated and 10 used as controls. The pigs were exposed to pen infection. Mr. Metzler was present and administered the material which was given in the feed. When several of the treated pigs refused feed, Pigs Nos. 669, 670, 671, 675, and 676 received the remedy in a drench. On the twentieth day but two of the treated pigs were alive, while eight of the untreated pigs were living. It would thus appear that the preparation had a harmful effect in treating cholera pigs.

The directions given by the manufacturer on the bottle labels were as follows: "Give four tablespoons of the remedy to every gallon of water or swill three times a week. If cholera appears in the neighborhood increase the dose to one ounce (fluid measure) and give daily." Additional instructions given were as follows: "Increase the dose one-fourth ounce to each gallon, every feed until the hogs refuse to take it. Then feed along at the biggest dose that they will take. Include same dose in all drinking water given to them."

On the conclusion of the test all treated and all control pigs had died, and it was shown that this remedy was without value in treating pigs affected with the cholera or in preventing the disease.

TABLE XX.—Data Obtained in Test of a Preparation Prepared by H. W. Metzler

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------|-----------------------|--------------------------------|
| G-689 | pen exposure | treated | died 11th day; cholera lesions |
| G-670 | pen exposure | treated | died 17th day; cholera lesions |
| G-671 | pen exposure | treated | died 11th day; cholera lesions |
| G-672 | pen exposure | treated | died 15th day; cholera lesions |
| G-673 | pen exposure | treated | died 15th day; cholera lesions |
| G-674 | pen exposure | treated | died 21st day; cholera lesions |
| G-675 | pen exposure | treated | died 15th day; cholera lesions |
| G-676 | pen exposure | treated | died 13th day; cholera lesions |
| G-677 | pen exposure | treated | died 12th day; cholera lesions |
| G-678 | pen exposure | treated | died 21st day; cholera lesions |
| G-679 | pen exposure | untreated | died 13th day; cholera lesions |
| G-680 | pen exposure | untreated | died 21st day; cholera lesions |
| G-681 | pen exposure | untreated | died 10th day; cholera lesions |
| G-682 | pen exposure | untreated | died 21st day; cholera lesions |
| G-683 | pen exposure | untreated | died 21st day; cholera lesions |
| G-685 | pen exposure | untreated | died 21st day; cholera lesions |
| G-686 | pen exposure | untreated | died 21st day; cholera lesions |
| G-687 | pen exposure | untreated | died 21st day; cholera lesions |
| G-688 | pen exposure | untreated | died 21st day; cholera lesions |
| G-689 | pen exposure | untreated | died 21st day; cholera lesions |

KOL-KUR

A preparation known as Kol-Kur produced by Chas. Billingsley, Princeton, Indiana, was delivered to the Station by the proprietor for a test. The material was placed on test November 20, 1916. Twenty pigs were used in the test, 10 receiving treatment according to directions and the others left untreated for controls. All the pigs were subjected to pen exposure and all died, showing hog cholera lesions upon post-mortem examination.

The result of the test shows Kol-Kur to be without value in curing or preventing hog cholera.

Pigs Nos. 750 and 752 were killed on the eighth day.

TABLE XXI.—Data Obtained in Test of Kol-Kur

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------|-----------------------|--------------------------------|
| G-739 | pen exposure | treated | died 18th day; cholera lesions |
| G-740 | pen exposure | treated | died 16th day; cholera lesions |
| G-741 | pen exposure | treated | died 16th day; cholera lesions |
| G-742 | pen exposure | treated | died 9th day; cholera lesions |
| G-743 | pen exposure | treated | died 14th day; cholera lesions |
| G-744 | pen exposure | treated | died 19th day; cholera lesions |
| G-745 | pen exposure | treated | died 15th day; cholera lesions |
| G-747 | pen exposure | treated | died 16th day; cholera lesions |
| G-748 | pen exposure | treated | died 18th day; cholera lesions |
| G-756 | pen exposure | treated | died 19th day; cholera lesions |
| G-749 | pen exposure | untreated | died 18th day; cholera lesions |
| G-750 | pen exposure | untreated | died 8th day; cholera lesions |
| G-751 | pen exposure | untreated | died 17th day; cholera lesions |
| G-752 | pen exposure | untreated | died 8th day; cholera lesions |
| G-753 | pen exposure | untreated | died 19th day; cholera lesions |
| G-754 | pen exposure | untreated | died 18th day; cholera lesions |
| G-746 | pen exposure | untreated | died 15th day; cholera lesions |
| G-759 | pen exposure | untreated | died 16th day; cholera lesions |
| G-849 | pen exposure | untreated | died 19th day; cholera lesions |
| G-851 | pen exposure | untreated | died 19th day; cholera lesions |

PREPARATION PREPARED BY MRS. HARRY CONDIT

A preparation recommended for the treatment of hog cholera by Mrs. Harry Condit of Vincennes, Indiana, was tested on 20 pigs, 10 of which received the preparation and 10 used for controls. The test was begun December 13, 1916. The pigs were subjected to pen exposure and eight of the treated pigs and nine of the control pigs died, showing extensive lesions of hog cholera upon post-mortem examination.

The material was administered according to directions furnished by Mrs. Condit as follows:

"For twenty head put three heaping tablespoonsful in a bucket of *scalded* bran, or if bowels are loose put it in the slop, or a handful of soft soap mixed to a paste with the same quantity of the powder, and put it in a trough or where they can easily get to it—will be eagerly devoured; they will take this when they will touch nothing else. According to sickness increase the amount given. If hogs are down and can't get up to eat, give from a tablespoon."

The result of the test shows the remedy to be without merit as a cure or preventive for hog cholera.

TABLE XXII.—Data Obtained in Test of a Preparation Prepared by Mrs. Harry Condit

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------|-----------------------|----------------------------------|
| G-866 | pen exposure | treated | died 15th day; cholera lesions |
| G-867 | pen exposure | treated | died 16th day; cholera lesions |
| G-868 | pen exposure | treated | died 19th day; cholera lesions |
| G-869 | pen exposure | treated | died 17th day; cholera lesions |
| G-870 | pen exposure | treated | died 19th day; cholera lesions |
| G-871 | pen exposure | treated | lived |
| G-872 | pen exposure | treated | died 14th day; cholera lesions |
| G-873 | pen exposure | treated | died 13th day; cholera lesions |
| G-874 | pen exposure | treated | died 17th day; cholera lesions |
| G-875 | pen exposure | treated | lived |
| G-877 | pen exposure | untreated | lived |
| G-878 | pen exposure | untreated | died 21st day; cholera lesions |
| G-879 | pen exposure | untreated | killed 14th day; cholera lesions |
| G-880 | pen exposure | untreated | killed 14th day; cholera lesions |
| G-881 | pen exposure | untreated | died 18th day; cholera lesions |
| G-882 | pen exposure | untreated | died 21st day; cholera lesions |
| G-883 | pen exposure | untreated | died 17th day; cholera lesions |
| G-884 | pen exposure | untreated | died 21st day; cholera lesions |
| G-885 | pen exposure | untreated | died 14th day; cholera lesions |
| G-886 | pen exposure | untreated | died 21st day; cholera lesions |

CHOLERINE

A sample of Cholerine, a preparation recommended by the proprietors for the treatment of hog cholera, was secured through a practicing veterinarian from the manufacturers, A. S. Horowitz Chemical Company, 17 E. 38th St., New York City, and tested on 18 pigs. The test was begun September 5, 1917. Nine pigs were treated with the remedy according to the directions of the manufacturers, 2.0 cubic centimeters being injected into each pig, and the remaining pigs were left as controls. Two of the treated pigs and one of the control pigs lived. The untreated pigs were killed when they showed fatal symptoms of cholera.

The test showed that Cholerine is without value as a cure or preventive for hog cholera.

The Wm. S. Merrill Chemical Company, Cincinnati, Ohio, has been advertising CholeRem for the prevention and treatment of hog cholera during the past year. The advertising literature sent out by this firm states that this is Dr. A. S. Horowitz's preparation. CholeRem is probably the same preparation as Cholerine.

TABLE XXIII.—Data Obtained in Test of Cholerine

| Hog number | Method of infection | Treated and untreated | Results |
|------------|---------------------|-----------------------|----------------------------------|
| M-481 | pen exposure | untreated | killed 11th day; cholera lesions |
| M-482 | pen exposure | untreated | killed 11th day; cholera lesions |
| M-483 | pen exposure | untreated | killed 10th day; cholera lesions |
| M-484 | pen exposure | untreated | killed 10th day; cholera lesions |
| M-485 | pen exposure | untreated | killed 11th day; cholera lesions |
| M-486 | pen exposure | untreated | lived |
| M-487 | pen exposure | untreated | killed 11th day; cholera lesions |
| M-488 | pen exposure | untreated | killed 11th day; cholera lesions |
| M-489 | pen exposure | untreated | killed 11th day; cholera lesions |
| M-490 | pen exposure | treated | died 14th day; cholera lesions |
| M-491 | pen exposure | treated | lived |
| M-492 | pen exposure | treated | died 15th day; cholera lesions |
| M-493 | pen exposure | treated | died 15th day; cholera lesions |
| M-494 | pen exposure | treated | died 15th day; cholera lesions |
| M-495 | pen exposure | treated | lived |
| M-496 | pen exposure | treated | died 19th day; cholera lesions |
| M-497 | pen exposure | treated | died 15th day; cholera lesions |
| M-498 | pen exposure | treated | died 15th day; cholera lesions |

TABLE XXIV.—Summary of Results Obtained in Tests of Twenty Different Preparations Recommended for the Cure or Prevention of Hog Cholera

| Remedy | Number hogs in test | | Number test hogs died | |
|---|---------------------|------------|-----------------------|------------|
| | treated | un-treated | treated | un-treated |
| Cunningham Hog Cholera Remedy ----- | 13 | 13 | 12 | 13 |
| National 23 (first test) ----- | 7 | 6 | 0 | 0 |
| National 23 (second test) ----- | 3 | 2 | 3 | 2 |
| U. S. Specific ----- | 4 | 4 | 4 | 4 |
| American Specific No. 2 ----- | 4 | 4 | 3 | 3 |
| Blue Moon Hog Corrector ----- | 4 | 4 | 4 | 4 |
| Preparation prepared by S. H. Colbert ----- | 10 | 10 | 7 | 8 |
| Crozier's Hog Cholera Cure ----- | 10 | 10 | 7 | 7 |
| Vaxall (first test) ----- | 10 | 10 | 5 | 4 |
| Vaxall (second test) ----- | 10 | 10 | 4 | 6 |
| Preparation prepared by A. J. Kuebler ----- | 10 | 10 | 7 | 7 |
| 544 (first test) ----- | 10 | 8 | 10 | 8 |
| 544 (second test) ----- | 10 | 11 | 9 | 10 |
| Porcine ----- | 10 | 10 | 10 | 8 |
| John Dobry's Remedy ----- | 10 | 10 | 7 | 3 |
| Perry's Swine Lixir ----- | 8 | 7 | 7 | 7 |
| Puritan Tablets ----- | 10 | 10 | 8 | 7 |
| Cal-Sino Hog Restorative ----- | 15 | 14 | 15 | 14 |
| Bourbon Remedy ----- | 10 | 10 | 6 | 8 |
| Posalti ----- | 10 | 10 | 10 | 7 |
| Preparation prepared by H. W. Metzler ----- | 10 | 10 | 10 | 10 |
| Kol-Kur ----- | 10 | 10 | 10 | 10 |
| Preparation prepared by Mrs. Harry Condit ----- | 10 | 10 | 8 | 9 |
| Cholerine ----- | 9 | 9 | 7 | 8 |
| Totals ----- | 235 | 227 | 187 | 179 |

Acknowledgment is made to Dr. H. C. Paine who was in charge of the test pigs up to June 1, 1917

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Fig. 1. An ear-to-row test showing a diseased row between two healthy ones, planted from a good looking ear which germinated 100 per cent. The yields of fields throughout the Corn Belt are reduced by using seed from ears that are infested or weakened by harmful organisms

SELECTION OF DISEASE-FREE SEED CORN

Published by the Station:
LAFAYETTE, INDIANA
U. S. A.

SUMMARY

Indiana corn yields are greatly reduced by hitherto little understood disease-producing organisms.

The planting of seed infested with these organisms is, in a great measure, responsible for missing hills, slow-growing stalks, barren stalks, down-stalks, nubbins, early blighting of plants in the field with the large reduction in yield which these conditions bring about.

The same organism which causes scab of wheat also causes rot of the stalks, ears, and ear-shanks of corn plants. Wheat planted in fields of diseased corn has more scab than occurs when the corn fields are free from scab-producing organism.

The ear-to-row method is recommended for studying the quality and value of seed ears. The selection of seed ears from disease-free stalks is recommended and explained.

By a careful study of germinating seedlings it is possible to discard from seed stock ears carrying disease-producing organisms. The bulletin explains how this may be done.

The type of germinator which serves best for this method of testing seed corn is also described and illustrated. Its use is recommended to all farmers who are interested in corn improvement and especially to seed corn breeders.

These facts had in a large measure been developed by investigations carried on by the authors during the past five years, and in 1917, this work was organized as an Experiment Station project.

SELECTION OF DISEASE-FREE SEED CORN¹

GEORGE N. HOFFER

J. R. HOLBERT

Many fields of corn in the Corn Belt states do not give the yields which their fertility and the attention given them in cultivation would justify. Considerable care may be used in selecting seed for planting, but too many missing hills and slow-growing stalks result. This has often been attributed to injuries from birds, root insects, and rodents, but recent studies on these troubles that have been made by Purdue University Agricultural Experiment Station in cooperation with the Office of Cereal Investigations, United States Department of Agriculture, show that while these injuries are important, there are other definite, harmful organisms which are responsible for disappointing stands and unprofitable yields.

When careful studies are made on seed ears, even those ears of high score card value, to determine their field performances by planting them by the ear-to-row method, it is apparent at once that some ears have high yielding ability, while others are of low power. The yield obtained in any field of corn is always the average of the yielding capacities of all the ears planted. The low yielding ears are most often those which had been taken from weakened parent stalks. This weakness may be due to the results of freezing or to injuries to the stalks caused by harmful organisms, such as fungi and bacteria.

EFFECTS OF PARASITIC ORGANISMS ON CORN PLANTS

The effects of certain fungi on the corn plants may be very marked. They may be observed readily in the form of smut, rust, broken ear shanks, broken stalks, and down-stalks which may be distributed irregularly through a field. Other harmful organisms may cause less striking effects on the plants. Inconspicuous rotting of the stalks, of the ears, and of the roots, may take place with no apparent injury. The ears, however, which are borne on such diseased plants are weakened. Perhaps the weakness is not enough to show decreased vitality on the germinator, but is evident in the field performance of the seed when taken from the ear and planted the following season.

The kernels from ears borne on diseased plants will have seedling characteristics which can be noted usually on the germinator. These seedling features and certain physical characters of the seed serve as a basis for discarding for seed purposes the incompletely matured ears formed on diseased stalks, since it has been shown that one effect of the rot-producing organisms may be to delay maturity. In contrast with such ears, those kernels from disease-free mother plants do not show the

¹ The work reported in this publication is the result of cooperation between the Bureau of Plant Industry of the United States Department of Agriculture, and the Purdue University Agricultural Experiment Station

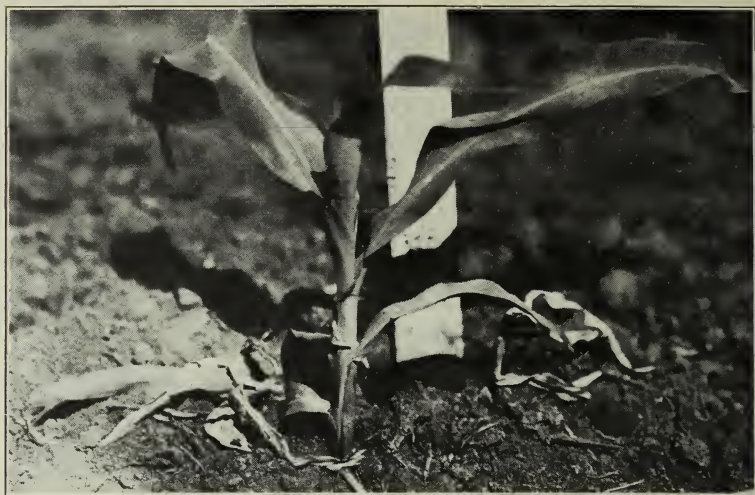


Fig. 2. Two infested seedlings which died soon after germinating. This blighting causes poor stands

abnormal conditions referred to above, and always give good germination on the germinator, provided no injury, such as freezing, has occurred.

The difference between infested and disease-free seed is very striking in fields where seedlings die early and where the plants blight while young. Some plants may remain stunted during the entire growing season. Fig. 2 shows some plants which died early. Ordinarily these plants are not noticed before the first cultivation. At this time, however, plants as shown in Fig. 3 may be found. The roots and bases of such young stunted stalks are rotted, as shown in Fig. 4.

For permanent corn improvement, only ears from disease-free stalks should be used for seed purposes. Improvement by this means, at first thought, may appear difficult to accomplish. There are two methods of selection of good seed ears, both of which, from the present state of knowledge, should be followed to insure freedom from disease.

1. Mature ears on disease-free stalks should be selected for planting. It is assumed that the variety of corn is one which is adapted to the soil and climatic conditions of the locality where it is grown and that it will mature in a normal season. Ears should never be selected from smutted stalks, or from stalks which are rotted or whose roots are rotted. Neither should ears be selected which have rotted, broken shanks as noted in Fig. 8. Many root-rotted plants die prematurely. The rotting of the stalk can be observed by cutting down through the plant and splitting it open. If the inner portion of the stalk, especially at the lower nodes or "joints," at the base of the stalk, shows a brown discoloration, the presence of a harmful organism in the plant is indicated. *A mature ear on a living green stalk is always best for seed purposes.*



Fig. 3. An infected seedling is indicated by early stunting. A barren stalk is usually the result



Fig. 4. A stunted stalk cut lengthwise through the base to show the rot resulting from a primary infection

2. A more critical study of the results of the germination test can be made than has been the habit in the past. It has been found that ears may have perfect germination and yet give low yields in the field; such ears have an unusual susceptibility to rot-causing organisms on the germinator. The seedlings from such ears may develop molds upon them and if they are cut through with a sharp knife at the time the normal seedlings are three or four inches in height, the rot will be noticed developing in the embryos of infected seedlings. This infection caused by harmful organisms, actually upon or within the seed-kernels, is called *primary infection*. *This early rotting of the seedling, the result of primary infection, is a germination characteristic by which the infested weak ears may be discarded before planting.*

Ears from diseased stalks may have kernels bearing harmful molds and bacteria in a relatively inconspicuous manner. The kernels may germinate, but at germination time, the young seedlings may be invaded readily because of this close relation. Then again, some ears may be free of any harmful organisms, but having been formed on a diseased parent-stalk, the seedlings growing from these ears are less resistant to infection and may, therefore, become infected readily on the germinator and in the field. Conspicuously moldy ears should never be considered for seed purposes.

In contrast with these infested ears are the ears from disease-free plants. The seedlings that develop from kernels on such ears do not show the rotting of the embryo before the plants are three or four inches in height. Figs. 14, 17. In other words, *primary infection does not occur in the seedlings from ears borne on disease-free stalks that are not otherwise injured.*



Fig. 5. A barren, a normal, and a stunted stalk in the same hill resulting from planting two infested seeds with a healthy one



Fig. 6. Do not select seed ears from smutted stalks

In the field, primary infections are very common in the plants from weakened and infested seed, Figs. 2 and 3. If the seeds are not weakened or infested with harmful organisms, the seedlings and plants will make good progress in growth in the field, providing weather and soil conditions are favorable.

The infected seedlings are slower growing, and depending upon their ability to overcome the effects of the organisms causing this primary infection, they may struggle along during the growing season and are not likely to produce good mature ears. The plants may be permanently stunted, and such plants are very common, or they may be only nubbin-bearing stalks.

It is this primary infection of seedlings in the field through the use of infested seed which is causing considerable losses to corn growers.

During the latter part of the growing season, *secondary infections* occur. These infections are caused by organisms which live in the soil on the remnants of a preceding crop, or which have been carried into the



Fig. 7. A prematurely dead stalk with rotted base. Note healthy adjacent stalk

soil on the infested seed which was used for planting. The same organisms which cause primary infections may also cause the secondary rotting of the roots. It is thus emphasized that infested seed may be responsible for both primary and secondary troubles in the same plants. The importance of planting disease-free seed is therefore apparent.

WHEAT SCAB RELATION

Another phase of the problem, and one which adds greater emphasis to the desirability of having disease-free corn fields, is the fact that the same organism which causes scab of wheat also causes a rot of the stalks and ear-shanks of corn plants. Wheat planted in diseased corn fields has more scab in it than when the corn fields are free of the scab-causing organism, or when it is planted following other crops. This intercrop relation is one of the most important problems of a pathological nature connected with the growing of these crops, especially so where winter wheat is planted in standing corn. The profitable control of wheat scab may be involved in the growing of disease-free corn, or in planting wheat on corn land

providing all of the fodder will have been removed completely during the fall or winter.

METHOD OF CORRELATING GERMINATOR RESULTS WITH FIELD PERFORMANCE OF THE SEED EARS

The best way to study the field performance of seed ears is by the ear-to-row plot method. Germinator tests are first made on a number of the kernels, at least 30, taken from various parts of the ears to be studied. Enough of the ear is shelled to plant a row of 75 or 100 hills in length in the field. These rows are kept under close observation during the growing season. The various phenomena referred to in this bulletin may then be observed and the effects of the harmful organisms on the corn plants noted.

Fig. 11 shows how the results of an ear-to-row plot can be demonstrated at a field meeting. Note that the hard corn was placed in the front pile, the remnant ear was preserved in a tin can, the soft corn was placed in the back pile, and a 25-pound sample was bagged for moisture determination.

Fig. 1 shows how striking the effects of the root-rots may appear in certain rows. The row of "down stalks" was bordered by two rows of standing corn. The value of the ear-to-row method of study of the dis-

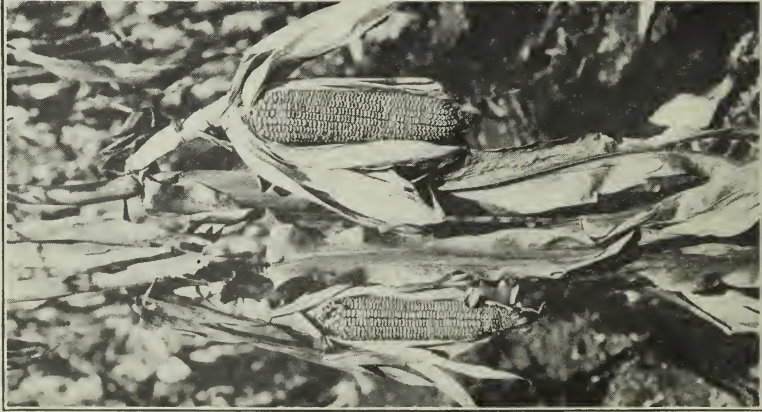


Fig. 8. Ears on broken shanks should not be used for seed



Fig. 9. Ears on broken shanks are frequently rotted



Fig. 10. Rotted stalks and shanks are responsible for many nubbins



Fig. 11. A well matured ear on a healthy shank is best for seed

eases of corn is that there is strikingly represented in the lives of the infested plants the phenomena which are so common in the ordinary fields of corn. All gradations of injuries may be noted.

For *seed corn* purposes no infested and weakened ears should be planted. These can be detected and discarded before planting.

THE GERMINATOR TEST

The testing of seed corn on germinators has already proved its worth. Bad ears are readily indicated in all types of germinators when dead kernels are found during the test. The method of interpretation of the germinator results recommended in this bulletin is applicable to all types of germinators in use, but is practiced most easily on the type of germinator recommended.

If the seedlings are infected on the germinator and show rotting of the embryo parts before the plants are three inches in height, as shown in Figs. 15 and 17, the ears from which the kernels were taken will show weaknesses in their field performances according to experimental results obtained to date.

The convenience with which these readings may be made is a matter of much importance where large numbers of ears are to be tested.

The rag-doll tester and the sand-box may be used but in as much as it is necessary to pull up the plants for examination, the former is the more convenient. But while the rag-doll is usable and fairly satisfactory for this method of interpretation of the seed corn test, the type of germinator where the seedlings can be observed as a whole, and the readings made directly, is the more desirable.



Fig. 12. A profitable hill of healthy stalks planted from disease-free ears

The type of germinator suggested involves the use of a limestone-sawdust base to supply the moisture for the germinating seeds. The germinator is very easily made and requires very little attention during the germination test. It is recommended to all farmers who are interested in corn improvement and especially so to those who breed corn on a large scale.

The germinator requires more effort to prepare, as well as more space, than the ones commonly used, but the advantage derived in being able to select disease-free ears commends it for this purpose.

The germinator is shown in Figs. 18, 19, and 20, and consists of a frame support on which there is a wire screen. This frame and screen holds about a two-inch layer of sawdust mixed with about one-fourth of its weight of ground limestone. The purpose of the limestone is to keep the sawdust sweet and to prevent the effects on the germinating seedlings of the injurious substances which develop in wet sawdust.

A sheet of heavy muslin that had been placed previously in boiling water to remove the starch is spread over this limestone-sawdust layer. The kernels of corn are placed on this muslin which may be marked in various ways to indicate the position of each of the ears tested, and the



Fig. 13. An ear-to-row test plot on harvest day. Note the hard corn, remnant ear box, soft corn and bag for moisture sample. This is the best method of determining high yielding, disease-free strains of corn varieties in each locality

seeds are then covered by another similarly treated sheet of muslin. The germinator and the sawdust-limestone substratum are then wet down with water, and to prevent rapid drying out are covered with gunny-sacks or heavy cloths for at least two days. When the corn germinates, these heavier cloths should be removed and the seedlings should be covered with the heavy muslin only. The germinator should be wet down thoroughly twice each day while in use. After the seedlings have grown to a height of three or four inches, they are ready for observation.

Those seedlings which have rotted embryos and stalks (Figs. 15 and 16), indicate the ears to be discarded for seed purposes. By reading the germinator on the basis of these rotted seedlings, and eliminating all of the ears which show this rot on the germinator, the primary infections which would otherwise occur in the field from seed from such ears and which would considerably reduce the yield in the field, can be prevented.

The harmful organisms referred to in this bulletin are species of *Gibberella*, *Fusarium*, *Verticillium*, *Rhizopus* and *Pseudomonas*. They will be described in a Technical Bulletin to be published in the near future.



Fig. 14. A good vigorous type of seedling. Note the early development of lateral rootlets



Fig. 15. An enlarged section through an infected seedling. The arrows point to the rotted tissue



Fig. 16. An infected seedling cut open to show the first stages in the development of rot. Contrast this with Figure 17



Fig. 17. A normal three-inch seedling cut through the embryo portion and laid open. Note the healthy condition of the germ

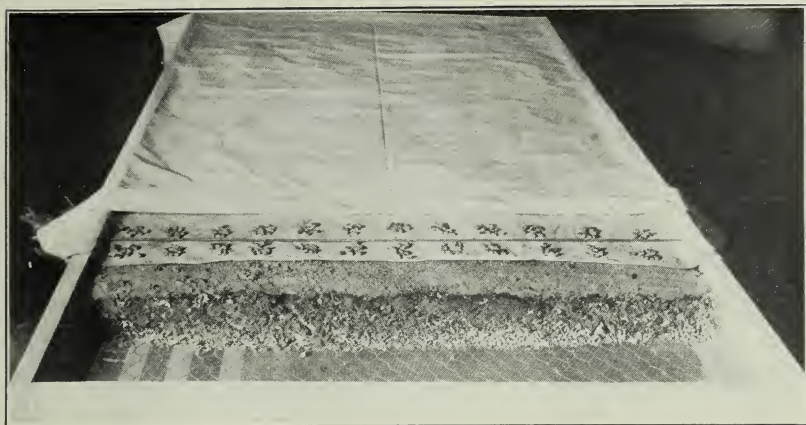


Fig. 18. A desirable type of germinator. Note layer of sawdust and limestone on the wire screen support

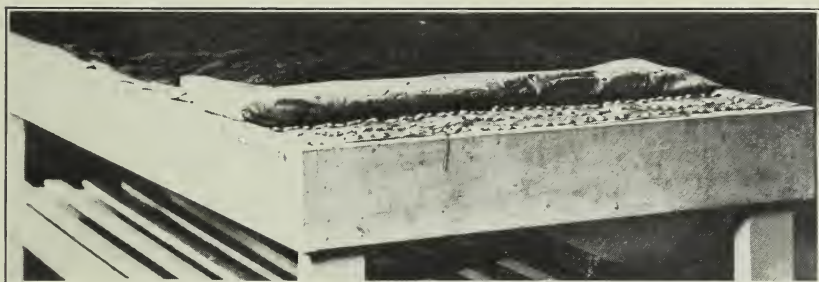


Fig. 19. Kernels in position on damp cloth ready to start test. Heavy cloths are placed on germinator for three days

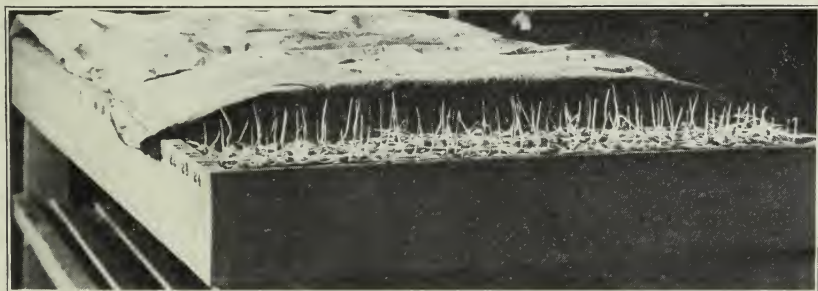


Fig. 20. Germination test completed. At this time infected seedlings can be noted and the diseased ears discarded



The Experiment Station Building. The Experiment Station was founded primarily to develop, through investigation and research, new information about agriculture. Facts must be discovered before they can be taught. The main Station building contains the headquarters and laboratories for the administration of the work of the Station. The work itself is conducted on the farms, in the fields, herds, and orchards of the State as well as in the offices and laboratories at Purdue

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- Bulletin No. 210. The value of phosphates on Indiana soils
- Bulletin No. 213. The value of lime on Indiana soils
- Bulletin No. 222. The value of manure on Indiana soils
- Circular No. 25. (Revised edition) How to grow more and better corn
- Circular No. 49. Farm manures
- Circular No. 66. The lime and fertilizer needs of Indiana soils
- Circular No. 76. Increasing crop yields for war needs
- Circular No. 79. Indiana soils need phosphates

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E. W. ALLEN,

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JUL 15 1919

BULLETIN No. 225

JANUARY, 1919



Fig. 1. Looking across the oats variety test field on Purdue Farm. The yield averaged over 80 bushels per acre

SPRING SMALL GRAINS IN INDIANA

Published by the Station:
LAFAYETTE, INDIANA
U. S. A.

The climate of Indiana, as a general rule, is too warm for the satisfactory development of the spring small grains and with the exception of oats and barley in the northern portion of the State, they are not to be recommended for general use.

The usual periods of hot weather during the fruiting season check development and cause shrivelling of the grain and consequently low yields and poor quality.

Profitable yields of oats and barley can be secured in northern Indiana, with fertile soil, good cultural methods and early seeding. On the loose, black-soils in this portion of the State, oats will usually do better than winter wheat.

Spring wheat can be profitably raised only in unusually cool seasons.

Spring rye, emmer and speltz are poorly adapted even to northern Indiana conditions and are not profitable as compared with oats, barley or the winter grains.

Special attention is called to the importance of treating seed oats for smut. This disease causes an average loss of at least 10 per cent. of the oats crop of Indiana. It may easily be prevented by seed treatment. (see pages 8, 9 and 10).

SPRING SMALL GRAINS IN INDIANA

A. T. WIANCKO

C. O. CROMER

SUMMARY

The spring small grains discussed in this bulletin, oats, barley, spring wheat, spring rye and emmer, are all cool weather crops and the climate of Indiana, for the most part, is too warm for their proper development.

The production of spring small grains cannot be recommended under normal seasonal conditions, except in the northern portion of the State, where the average temperature during their growing season is several degrees cooler than in southern Indiana.

Their profitable production, even in northern Indiana, is conditioned upon early seeding, good soil and cultural conditions and the absence of hot weather.

The careful selection of varieties and proper grading of the seed will aid materially in increasing the yields.

There is no important advantage in the use of imported seed.

Oats is the leading spring small grain crop in Indiana, comprising about 99 per cent. of the total acreage devoted to such crops.

The medium maturing varieties of oats have been the best yielders on the Station farm, and among these the Great Dakota, Big Four, Silver Mine, White Bedford and Schance have been leaders. Among early maturing varieties, Daubeney and Sixty Day have been the leaders.

Loose smut is a troublesome disease of oats in Indiana. Treating the seed with formaldehyde will practically eliminate this disease and materially increase the yields.

Barley stands next to oats in importance among spring small grains in Indiana and on mellow soils in northern Indiana, the proportion of this crop might be profitably increased. Silver King, Canadian No. 21 and Hannchen have been the most profitable varieties on the Station farm. Among early varieties, the Success Beardless is best.

On the average, the conditions in Indiana are not favorable to spring wheat as compared with either oats, barley, winter wheat or winter rye. Marquis and Regenerated Red Fife are the most promising varieties.

Emmer and spring rye are of little importance in Indiana.

The comparative average yields of spring small grains on the Station farm during the last nine years have been: oats, 52.6 bushels; barley, 28.7 bushels; spring wheat, 13.7 bushels where under the same conditions winter wheat yielded 29.2 bushels and winter rye, 38.7 bushels.

INTRODUCTION

The area devoted to spring small grains in Indiana amounts to about 1,730,000 acres annually, or about 20 per cent. of the total acreage of grain crops. This acreage is of sufficient importance to warrant a careful study of the subject, including the different kinds of spring small grains, their adaptation to Indiana conditions, the most suitable varieties and the best cultural methods in their production.

The principal kinds of spring small grains grown in Indiana are oats, barley and spring wheat. Of these, oats constitutes about 99 per cent., barley about 0.8 per cent. and spring wheat less than 0.2

per cent. The areas devoted to emmer and spring rye are practically negligible. For the 10-year period, 1908-1917, the average yields of oats and barley were 31.8 bushels per acre and 26.5 bushels respectively. There is no record of the average yield of spring wheat but it has been somewhere below the average yield of winter wheat. During the same period the average farm price of oats was 42 cents, barley 68 cents and wheat \$1.14 per bushel. A little calculation will show that on the average, the profits derived from these crops have been small and that something needs to be done if they are to retain an important place in Indiana agriculture. On some farms, oats and even barley and spring wheat are profitable crops but on the majority of farms they are grown at a loss.

An important reason why these crops do not do better in Indiana is that the climatic conditions are not favorable to their production. The temperature during the growing season, and especially during the fruiting period, is too high for their proper development. They are all cool weather crops and suffer severely when the temperature gets up above 80 degrees, as is often the case during their growing season in this part of the country. This disadvantage must be reckoned with from the beginning, and Indiana farmers never will be able to compete on an equal basis with farmers in the states further north in the production of spring small grains. Within the State, the farmers of northern Indiana have a considerable advantage over the farmers in southern Indiana because of climatic differences. The average June-July temperature for the last 14 years has been 71 degrees Fahrenheit in northern Indiana and 75 degrees in southern Indiana. This temperature difference is sufficient to seriously discourage spring small grain production in the southern part of the State where hot weather nearly always cuts both yield and quality. As a matter of fact, northern Indiana grows over 85 per cent. of the spring small grains produced in the State.

In certain sections of northern Indiana, notably the prairies and the Kankakee marsh area, the soil conditions are more favorable to spring grains than they are to the winter grains, which further accounts for the preponderance of spring grains in the northern part of the State. These conditions, however, are changing through better drainage, and winter grains are steadily pushing further north.

For those who may be in doubt as to whether they should raise spring or winter small grains, it will be interesting to examine a comparative statement of average returns based on average yields and average farm prices. Taking the state averages for the last nine years, 1910 to 1918 inclusive, the gross returns per acre for the grain alone have been \$14.96 for oats, \$19.52 for barley, \$20.19 for winter wheat and \$14.74 for winter rye. The average yields per acre have been: oats, 34 bushels; barley, 27.5 bushels; winter wheat, 15.9 bushels; winter rye, 15.2 bushels. The average farm prices per bushel have been: oats, 44 cents; barley, 71 cents; winter wheat, \$1.27; winter rye, 97 cents.

To show what may be done on fairly well managed soil and how the several small grains compare under like conditions in this part of the State, attention may be called to the results on the Experiment Station fields at LaFayette reported in Table V of this bulletin. As shown, the average yields per acre for the several crops during the last nine years

have been as follows: oats, 52.6 bushels; barley, 28.7 bushels; spring wheat, 13.7 bushels; winter wheat, 29.2 bushels, and winter rye, 38.7 bushels. Based on the average farm prices for the State during the same period, the gross returns per acre for the grain alone have been as follows: oats, \$23.14; barley, \$20.38; spring wheat, \$17.26; winter wheat, \$37.08; winter rye, \$37.54.

The conditions on the Station fields are not any better than they may be made on the majority of farms in the northern half of the State at least. Modern cultural methods have been practiced. Fair amounts of manure have been applied and some acid phosphate has been used. The most common crop rotation has been corn, spring small grains, winter small grains and clover or mixed clover and timothy.

INCREASING THE YIELDS PER ACRE

In order to realize a profit from raising spring small grains, the yields per acre must be increased. Probably the first requisite is better soil conditions. If the ground is naturally wet or heavy, it should be more thoroughly drained. A good system of tile drainage will soon pay for itself and will make all other treatments more effective. A good crop rotation should be adopted in which clover or some other legume appears at least once every three years. The legume will provide nitrogen and make more mineral plant food available for the other crops and will improve the physical condition of the soil. To get a good growth of legumes, the soil may need to be limed. With a good rotation and the use of a fair proportion of stable manure, some available phosphate is the only fertilizer that will need to be added for all ordinary soils. On run down soils, it may be necessary to buy some nitrogen and potash until the legume is well established. Practically all Indiana soils are lacking in phosphorus and this substance will need to be regularly purchased. At least 100 pounds per acre per year of a high grade acid phosphate or its equivalent in other available phosphates should be used. Enough phosphate for the whole rotation can be applied to one or two of the grain crops, according to convenience.

Better cultural methods must be practiced. Disking oats or other small grain in corn-stalk ground is not a good method of seeding but where this is necessary, it should be more carefully done so as to secure a fine, even seed bed. Deep disking is not so desirable as a thorough pulverization of the surface. Fall plowing in the northern part of the State will pay well wherever this can be done. Fall plowed land can be worked earlier in the spring than stalk land. Early seeding is a very important factor in the successful production of spring small grains in Indiana. A few days delay in seeding may seriously reduce the yield. Observations on interrupted seedings on the Station grounds have substantiated this statement many times. Drilling the seed is always better than broadcasting, because it insures more even covering and a more even distribution of the seed.

Finally, it is important to use good seed and good varieties. The results of the variety tests reported in this bulletin will show which varieties are best suited to Indiana conditions. Thorough cleaning and grading of the seed will insure a better stand and add several bushels to

the yield. A good fanning mill or other seed grader should be a part of every small grain grower's equipment. The results of experiments conducted for several years at the Ohio, Kansas, Minnesota and Canadian experiment stations with oats have shown an average increase of nine bushels per acre from the use of large, heavy seed as compared with small and light seed. Good seed must be free of plant diseases. Most of these are readily preventable by proper seed treatment.

OATS

TIME OF SEEDING AND SOIL PREPARATION.—Oats should be sown as early in the spring as it is possible to work the ground without injury, to obtain the largest yields of grain of the best quality. Where plowing ground for oats is practiced, this should be done in the fall. Fall plowed land can be worked earlier in the spring than unplowed land and has the advantage of permitting earlier seeding. Spring plowing is not generally practiced on account of the necessary delay in seeding. For corn ground, disking is usually the most practical method of preparing the seed bed for oats and other spring grains requiring early seeding. The disking and harrowing should be thorough but not deep. Fineness and uniformity are important to insure an even stand.

METHOD AND RATE OF SEEDING.—As to the most profitable manner of seeding, it may be said that a great deal depends upon the season. Broadcasting does not insure the most uniform distribution of seed and covering with a smoothing harrow does not plant all kernels at the proper depth. When the planting season is dry, this ununiformity in depth of planting is objectionable. Drilling with a seed drill insures uniform distribution and depth of planting. It pays to do the work well under all climatic conditions. The optimum rate of seeding will depend upon the season, the size of the berry and the fertility of the soil. In 1909, the Station began an experiment which was continued over a period of eight years to determine what rate of seeding should be recommended to produce the most profitable yields. In this period, practically all kinds of growing seasons have occurred. In 1913, the experiment was located on a new farm and in places the ground was so weedy that the results could not be considered trustworthy and were discarded. Two varieties were used in this experiment—Swedish Select, a large kernalled oat, and Silvermine, having a medium sized kernel.

TABLE I.—Results of Experiments in Different Rates of Seeding Oats

| Variety | Year | Rates of seeding and yields in bushels per acre | | | | | |
|--|---------|---|---------|----------|----------|----------|----------|
| | | 6 pecks | 8 pecks | 10 pecks | 12 pecks | 16 pecks | 20 pecks |
| Silvermine | 1909 | 60.3 ¹ | 65.1 | 64.1 | 64.7 | 51.0 | 59.7 |
| | 1910 | 60.4 | 61.7 | 60.5 | 57.4 | 58.3 | 62.6 |
| | 1911 | 34.0 | 31.4 | 32.7 | 36.5 | 32.6 | 32.0 |
| | 1912 | 54.6 | 65.1 | 66.8 | 77.2 | 67.9 | 65.8 |
| | 1914 | 12.7 | 11.7 | 11.5 | 11.2 | 10.2 | 7.1 |
| | 1915 | 66.8 | 70.7 | 72.8 | 71.4 | 76.0 | 71.0 |
| | 1916 | 51.4 | 57.2 | 57.2 | 58.5 | 56.2 | 55.2 |
| | Average | 48.6 ¹ | 51.8 | 52.2 | 53.8 | 50.3 | 50.5 |
| Swedish Select | 1909 | 52.2 ¹ | 56.0 | 56.5 | 48.2 | 54.6 | 54.1 |
| | 1910 | 54.5 | 59.1 | 58.1 | 54.7 | 55.9 | 58.9 |
| | 1911 | 29.7 | 31.3 | 30.5 | 33.7 | 29.0 | 28.9 |
| | 1912 | 53.4 | 58.5 | 66.4 | 67.0 | 64.1 | 63.4 |
| | 1914 | 9.3 | 10.8 | 9.5 | 9.5 | 8.3 | 8.8 |
| | 1915 | 70.0 | 74.7 | 67.5 | 75.2 | 73.0 | 82.8 |
| | 1916 | 48.0 | 57.3 | 57.3 | 57.7 | 53.7 | 55.0 |
| | Average | 45.3 | 49.7 | 49.4 | 49.4 | 48.4 | 50.3 |
| General average of both varieties | | 46.9 | 50.7 | 50.7 | 51.6 | 49.3 | 50.4 |
| Average net yield after deducting the seed | | 45.4 | 48.7 | 48.2 | 48.6 | 45.3 | 45.4 |

¹ Calculated yield

It may be observed in Table I that 12 pecks per acre of Silvermine gave the largest average yield and 20 pecks of Swedish Select produced best. In the case of the Silvermine variety, the apparently abnormally high yield of the 12-peck rate of seeding in 1912 is the cause of this rate of seeding giving the highest average yield; barring this, the 10-peck rate of seeding has been most profitable. In the case of the Swedish Select variety, the extra seed above eight pecks per acre did not pay. The general average of the two varieties indicates that drilling eight to 12 pecks of clean seed per acre will produce the most profitable yields.

Ohio results¹ closely agree with the results obtained at the Indiana Station. Iowa results² seem to indicate that a four-bushel rate of seeding is most productive for the Kherson variety, while not over three bushels per acre of Silvermine and other similar varieties should be sown for maximum returns in that state. The richer the soil, the more favorable the season and the larger the type of kernel, the larger should be the rate of seeding oats. In sowing a variety like the Sixty Day or Kherson, a smaller quantity of seed will give as good a stand as a larger quantity of a largerkerneled variety but due to the shorter growth, more scant foliage and earlier maturity of the smallkerneled varieties, it may be more profitable to seed at a heavier rate than one would sow such varieties as the Swedish Select.

¹ Ohio Agricultural Experiment Station Bulletin No. 257² Iowa Agricultural Experiment Station Bulletin No. 175

GRADING THE SEED.—A fanning mill should be considered a part of the equipment of a small grain grower. The use of the fanning mill removes the dirt, sticks, weed seeds, light kernels and any other foreign matter that would hinder the uniform distribution of the seed in sowing and the securing of a perfect stand. Experiments by this and other stations show that it pays to run the oats through a good fanning mill at least once, in order to remove dirt, straw, and light as well as diseased and unfilled grains.

SEED DISEASES.—Several diseases are common to oats in Indiana, viz., leaf rust, stem rust, blight and smut. Perhaps oats smut is the disease most detrimental to large yields, but is at the same time, the most easily controlled of any of the diseases mentioned. It has been estimated that as much as five per cent. to 10 per cent. of the oats crop is destroyed by smut each year. In some cases, the proportion of infected plants reaches 25 per cent. of the crop. The formalin treatment not only kills the smut spores and increases the yield, but it also improves the quality of the grain and the straw as well. This treatment may be of benefit in killing other disease spores borne by the kernels, which tend to reduce the yield.

DIRECTIONS FOR TREATING SEED.—Owing to the fact that the smut germs are present only on the surface of the kernels, it is an easy task to



Fig. 2. The "wet method" of applying the formaldehyde treatment to seed oats to prevent smut, using a watering can

destroy them without impairing the vitality of the oats. Until recently, the method in general use consisted in treating the seed with a comparatively weak solution of formaldehyde. A new method, requiring a very strong solution of formaldehyde, has been carefully tested out and is being recommended by several experiment stations. The old method

may well be called the wet method, and the new, the dry method, considering the amount of water used in each. The main advantage of the dry method is that the treated seed remains practically dry and can be sown immediately after the treatment. The tests have also shown that the grain treated by the dry method is not as liable to injury as it is when treated by the wet method.

THE WET METHOD.—Prepare a solution by mixing one pint of formaldehyde in 40 gallons of water. One gallon of this solution will treat about one and one-half bushels of oats. Spread the seed on a tight board or cement floor, on a canvas or in a wagon box, and sprinkle with the prepared solution. Then shovel the grain over to distribute the moisture. Repeat this a number of times until all grain is thoroughly moist, but not wet, and then shovel into a pile. Cover the pile with disinfected sacks, canvas, old rugs or horse blankets, for at least two hours. The treated grain may safely be left covered, however, from morning until night or through the night if treated in the evening. The grain is usually dry enough to sow about 12 to 24 hours after the treatment. To allow for its swollen condition at this time, the seeding machine should be set to sow about one-fifth more per acre than when perfectly dry grain is used.



Fig. 3. The "dry method" of applying the formaldehyde treatment to seed oats to prevent smut, using an atomizer-sprayer

If the treated grain is to be kept longer than 24 hours before sowing, it must be spread out and occasionally raked or shoveled over to allow it to dry. It should never be sacked or left in a deep pile in damp condition.

THE DRY METHOD.—Mix one pint of formaldehyde with one pint of water and pour the solution into a one-quart hand sprayer. A good hand atomizer-sprayer, equipped with an ordinary quart Mason jar to hold the solution, can be purchased for about 50 cents to 75 cents. Spray the solution on the grain, as it is being shoveled over, taking care that it is well distributed. One quart of the solution will treat 50 bushels of oats. When all grain is treated, shovel it into a pile and cover for *five hours* as directed under the wet method. The grain may be sown immediately after the treatment or allowed to aerate thoroughly and stored until needed.

PRECAUTIONS REGARDING FORMALDEHYDE TREATMENT.—Care should be taken to use only formaldehyde of proper strength, as otherwise the results may be disappointing. The treating solution should not be made stronger or weaker than recommended. If less than 50 bushels of oats are to be treated, the proper amount of solution to be used should be calculated on the basis of three quarts to a gallon per bushel in the wet method, and two-thirds of an ounce per bushel in the dry method. When treating by the dry method the sprayer should be held close to the grain to prevent waste of the mist. The grain should be treated in a well ventilated place, especially if using the dry method, to avoid the irritating effect of the formaldehyde gas. Care should be taken to avoid reinfection. The bin, sacks, the seed drill, or any other container that held untreated oats, previous to placing treated seed in it should be sprayed with formaldehyde solution.

The expense connected with the seed treatment is practically negligible. The cost of formaldehyde is less than one cent per bushel, or



Fig. 4. Result of formaldehyde treatment for oats smut. The bundle at right is the produce of treated seed and contains no smut. The bundle at left shows the proportion of sound oats and the bundle in the middle, the smutted oats produced from a lot of the same seed without the formaldehyde treatment. The untreated seed produced 31 per cent. of smutted heads

about two cents an acre, and the labor requires comparatively little time. Two men can easily treat 50 bushels in less than an hour. To treat all seed oats in Indiana would cost about \$34,000.00. This investment would save annually about 7,700,000 bushels of grain worth, at 50 cents a bushel, \$3,750,000, or over ten times the cost of seed treatment.

VARIETIES.—Varieties of grain vary in their ability to produce under a given set of conditions. The qualities that go to make up a good variety of oats for Indiana are high yield, stiff straw, medium early maturity, and low per cent. of hull. Not all of these qualities are correlated with yield, so that yield is usually the most important factor in determining the importance of any variety. The question of securing the best variety cannot be decided until the varieties in question have been put through a test covering several years. The Soils and Crops Department has been conducting such tests for a number of years. A summary of the average yields of all the varieties tested at the Experiment Station since 1904, grouped according to the years tested, appears in Table II. Swedish Select has been used as the check throughout the test. It is a coarse, moderately stiff-strawed variety with an open panicle, and is medium to moderately late in maturity.

TABLE II.—Summary of Oats Variety Tests, 1904-1918

| Varieties grouped by years in test | Color of grain | Yields in bushels per acre | | | | | | | Aver- age |
|---------------------------------------|----------------------|----------------------------|------|------|-------------------|-------------------|-------------------|--|--------------|
| | | 1904 | 1905 | 1906 | 1907 | 1908 | 1909 | | |
| 1904-1907 | | | | | | | | | |
| Swedish Select | white | 66.2 | 64.0 | 59.1 | 23.8 | | | | 53.3 |
| Black Diamond | black | 58.4 | 69.0 | 67.9 | 24.6 | | | | 55.0 |
| Early Illinois | white | 67.8 | 65.0 | 56.6 | 22.8 | | | | 53.0 |
| Northern White Star | white | 59.1 | 71.5 | 69.5 | 24.1 | | | | 56.0 |
| Prosperity | white | 36.8 | 72.5 | 39.4 | 17.7 | | | | 41.6 |
| 1904-1908 | | | | | | | | | |
| Swedish Select | white | 66.2 | 64.0 | 59.1 | 23.8 | 35.2 | | | 49.7 |
| American Banner | white | 59.3 | 50.4 | 74.9 | 24.0 | 33.0 | | | 48.3 |
| Big Four | white | 67.5 | 62.5 | 74.8 | 23.6 | 39.0 | | | 53.5 |
| Black Gotham | black | 54.4 | 64.0 | 71.7 | 21.3 | 38.5 | | | 50.0 |
| Centennial | white | 55.3 | 71.4 | 62.5 | 20.3 | 35.5 | | | 49.0 |
| Clydesdale | white | 59.1 | 65.0 | 66.9 | 18.4 | 35.3 | | | 48.9 |
| Colonel | white | 67.5 | 52.0 | 64.7 | 22.8 | 35.6 | | | 48.5 |
| Early Champion | white | 59.4 | 68.0 | 37.1 | 19.5 | 28.4 | | | 42.5 |
| Great Dakota | white | 59.3 | 76.5 | 74.2 | 29.4 | 35.7 | | | 55.0 |
| Green Mountain | white | 62.2 | 70.0 | 63.4 | 26.0 | 38.0 | | | 51.9 |
| Improved American | white | 40.9 | 66.5 | 67.2 | 28.5 | 35.9 | | | 47.8 |
| Kansas Hybrid | white | 58.9 | 66.0 | 61.7 | 24.0 | 42.4 | | | 50.6 |
| Kherson | yellow | 38.7 | 68.0 | 50.6 | 17.2 | 33.8 | | | 41.7 |
| Lincoln | white | 64.3 | 66.0 | 69.4 | 19.6 | 40.3 | | | 51.9 |
| Michigan Wonder | white | 68.7 | 53.0 | 60.2 | 18.7 | 41.0 | | | 48.3 |
| Mortgage Lifter | white | 59.3 | 63.0 | 66.9 | 25.9 | 37.5 | | | 50.5 |
| Purdue Black | black | 58.1 | 59.1 | 63.5 | 24.4 | 42.8 | | | 49.6 |
| Scotch Champion | white | 42.5 | 43.0 | 53.1 | 17.2 | 34.3 | | | 38.0 |
| Scottish Chief | white | 59.3 | 62.0 | 64.2 | 19.4 | 42.4 | | | 49.5 |
| Seizure | white | 49.4 | 65.0 | 62.6 | 16.9 | 32.9 | | | 45.4 |
| Silver Mine | white | 69.1 | 67.0 | 68.8 | 22.2 | 33.9 | | | 52.2 |
| Sixty Day | yellow | 36.5 | 85.9 | 41.3 | 23.2 | 42.3 | | | 45.8 |
| Tyraton | white | 63.1 | 62.5 | 67.2 | 22.0 | 33.2 | | | 49.6 |
| White Belgian | white | 66.2 | 63.0 | 59.7 | 15.3 | 35.5 | | | 47.9 |
| 1904-1909 | | | | | | | | | |
| Swedish Select | white | 66.2 | 64.0 | 59.1 | 23.8 | 35.2 | 58.8 | | 51.2 |
| Czar of Russia | white | 66.8 | 69.0 | 65.8 | 27.2 | 33.9 | 56.2 | | 53.1 |
| Gold Mine | white | 59.3 | 68.5 | 67.9 | 26.0 | 40.9 | 50.4 | | 52.2 |
| Great American | white | 46.5 | 59.0 | 62.7 | 16.4 ¹ | 41.1 | 37.7 | | 43.9 |
| 1905-1909 | | | | | | | | | |
| Swedish Select | white | | 64.0 | 59.1 | 23.8 | 35.2 | 58.8 | | 48.2 |
| Black Prolific | black | | 51.0 | 56.7 | 20.8 | 35.0 | 47.2 | | 42.1 |
| Black Tartarian | black | | 66.0 | 67.6 | 18.5 | 41.1 | 58.0 | | 50.2 |
| Fourth of July | white | | 68.0 | 40.4 | 20.5 | 34.6 | 53.1 | | 43.3 |
| Improved White | | | | | | | | | |
| Russian | white | | 57.0 | 53.6 | 18.6 | 54.7 | 56.4 | | 48.1 |
| National | white | | 58.0 | 65.3 | 22.0 | 41.2 | 58.3 | | 49.0 |
| Texas Red | reddish | | 64.0 | 64.8 | 26.6 | 39.5 | 48.9 | | 48.8 |
| Twentieth Century | white | | 63.0 | 54.7 | 19.9 | 32.9 ¹ | 55.0 ¹ | | 45.1 |
| White Mohegan | white | | 55.0 | 63.5 | 19.1 | 35.3 | 52.9 | | 45.2 |
| White Superior | | | | | | | | | |
| Scotch | white | | 53.0 | 43.9 | 21.1 | 36.4 | 54.2 | | 41.7 |

¹ Calculated yield

TABLE II.—Summary of Oats Variety Tests, 1904-1918 (continued)

| Varieties grouped by years in test | Color of grain | Yields in bushels per acre | | | | | | | |
|---------------------------------------|----------------------|----------------------------|------|------|------|------|------|------|--------------|
| | | 1906 | 1907 | 1908 | 1909 | 1910 | 1911 | 1912 | Aver- age |
| 1906-1910 | | | | | | | | | |
| Swedish Select | white | 59.1 | 23.8 | 35.2 | 58.8 | 39.7 | | | 43.3 |
| Golden Fleece | white | 65.2 | 21.0 | 45.0 | 57.8 | 41.9 | | | 46.2 |
| National | white | 65.3 | 22.0 | 41.2 | 58.3 | 37.2 | | | 44.8 |
| University No. 6 | white | 59.2 ¹ | 25.3 | 33.9 | 55.2 | 44.4 | | | 43.6 |
| Welcome | white | 68.4 | 28.9 | 39.7 | 51.4 | 41.2 | | | 45.9 |
| 1908-1912 | | | | | | | | | |
| Swedish Select | white | | | 35.2 | 58.8 | 39.7 | 26.2 | 70.5 | 46.1 |
| Daubeny | white | | | 35.6 | 75.7 | 30.7 | 25.4 | 67.9 | 47.1 |
| Emperor William | white | | | 38.7 | 56.0 | 48.9 | 37.1 | 67.7 | 49.7 |
| Great Dakota | white | | | 35.7 | 56.9 | 42.2 | 27.1 | 75.9 | 47.6 |
| Regenerated Swedish Select | white | | | 36.5 | 57.0 | 39.5 | 27.6 | 75.3 | 47.2 |
| Silver Mine | white | | | 33.9 | 68.0 | 34.3 | 25.1 | 82.9 | 48.8 |
| Sparrowbill | white | | | 25.3 | 58.8 | 33.7 | 18.2 | 73.9 | 42.0 |
| White Bedford | white | | | 31.3 | 66.3 | 46.6 | 25.7 | 89.6 | 51.9 |
| White Belyak | white | | | 29.2 | 58.6 | 36.9 | 23.7 | 87.6 | 47.2 |
| White Plume | white | | | 32.2 | 59.0 | 24.4 | 24.5 | 98.4 | 47.7 |
| | | 1909 | 1910 | 1911 | 1912 | 1914 | 1916 | | |
| 1909-1914 | | | | | | | | | |
| Swedish Select | white | 58.8 | 39.7 | 26.2 | 70.5 | 15.6 | | | 42.2 |
| Black Egyptian | black | 57.8 | 33.5 | 31.3 | 78.7 | 13.4 | | | 42.9 |
| Garton No. 364 | white | 43.5 | 27.6 | 25.7 | 72.6 | 16.9 | | | 37.3 |
| Garton No. 396 | black | 53.7 | 29.7 | 30.8 | 74.9 | 16.9 | | | 41.2 |
| Garton No. 436 | white | 53.2 | 40.2 | 26.1 | 70.3 | 12.9 | | | 40.5 |
| Garton No. 572 | white | 51.6 | 46.9 | 26.0 | 71.8 | 18.9 | | | 43.0 |
| Garton No. 691 | black | 47.6 | 27.3 | 29.2 | 63.6 | 17.6 | | | 37.1 |
| Great Northern | white | 50.6 | 39.5 | 24.8 | 71.3 | 16.2 | | | 40.5 |
| New Sensation | white | 59.3 | 39.8 | 25.2 | 68.2 | 12.7 | | | 41.0 |
| Peerless | white | 58.2 | 36.8 | 26.5 | 69.3 | 12.5 | | | 40.7 |
| Schance | white | 63.1 | 46.3 | 23.5 | 95.9 | 16.4 | | | 49.0 |
| White Bonanza | white | 53.6 | 35.6 | 24.9 | 90.0 | 11.7 | | | 43.1 |
| White Tartar King | white | 51.5 | 28.9 | 22.9 | 93.7 | 16.5 | | | 42.7 |
| 1910-1916 | | | | | | | | | |
| Swedish Select | white | | 39.7 | 26.2 | 70.5 | 15.6 | 62.4 | | 42.9 |
| Canadian Cluster | white | | 27.1 | 26.0 | 65.4 | 17.1 | 50.6 | | 37.2 |
| Kirsche's Original | white | | 35.5 | 20.5 | 74.8 | 14.5 | 55.2 | | 40.1 |
| President | white | | 44.8 | 23.0 | 68.8 | 13.8 | 56.4 | | 41.3 |
| Roosevelt | white | | 36.4 | 25.2 | 71.7 | 8.8 | 56.4 | | 39.7 |
| Senator | white | | 17.3 | 20.4 | 77.2 | 11.8 | 52.1 | | 35.8 |
| University No. 26 | white | | 39.1 | 28.8 | 84.8 | 14.0 | 58.1 | | 44.9 |
| Victor | black | | 32.0 | 29.9 | 70.7 | 13.4 | 40.8 | | 37.4 |

¹ Calculated yield

TABLE II.—Summary of Oats Variety Tests, 1904-1918 (continued)

| Varieties grouped by years in test | Color of grain | Yields in bushels per acre | | | | | | | Aver- age |
|---|----------------------|----------------------------|------|------|------|-------|------|--|--------------|
| | | 1911 | 1912 | 1914 | 1915 | 1917 | 1918 | | |
| 1911-1917 | | | | | | | | | |
| Swedish Select | white | 26.2 | 70.5 | 15.6 | 62.4 | 82.8 | | | 51.5 |
| Borstlas Probsteier | yellow | 16.7 | 60.6 | 15.9 | 47.6 | 74.4 | | | 43.0 |
| Guldregns | yellow | 22.8 | 73.3 | 17.2 | 54.8 | 79.8 | | | 49.6 |
| Hoit Probsteier | white | 21.7 | 75.0 | 17.9 | 57.2 | 81.8 | | | 50.7 |
| Hvitling | white | 23.4 | 72.3 | 18.3 | 49.2 | 64.3 | | | 45.5 |
| Ligowo | white | 27.3 | 75.6 | 9.9 | 62.1 | 77.4 | | | 50.5 |
| Napoleon | white | 22.5 ¹ | 82.6 | 12.3 | 50.1 | 71.0 | | | 47.7 |
| Seger | white | 22.3 | 84.1 | 17.7 | 65.7 | 84.7 | | | 54.9 |
| Serial No. 37 | yellow | 32.3 | 77.3 | 17.0 | 65.4 | 99.2 | | | 58.2 |
| Serial No. 40 | yellow | 38.0 | 72.9 | 16.2 | 77.9 | 87.5 | | | 58.5 |
| Serial No. 42 | yellow | 34.7 | 70.0 | 11.7 | 72.2 | 100.2 | | | 57.8 |
| 1914-1918 | | | | | | | | | |
| Swedish Select | white | | | 15.6 | 62.4 | 82.8 | 71.4 | | 58.0 |
| Black Belle II | black | | | 10.8 | 38.6 | 41.6 | 70.9 | | 40.5 |
| Black Great Mogul | black | | | 0.0 | 38.3 | 53.9 | 70.6 | | 40.1 |
| Crown | white | | | 13.8 | 59.8 | 81.9 | 76.2 | | 57.9 |
| Garton No. 5 | white | | | 13.6 | 42.7 | 60.5 | 60.2 | | 44.3 |
| Mammoth Cluster | white | | | 10.6 | 50.2 | 56.2 | 60.6 | | 44.4 |
| Swedish Tarpaulin | white | | | 11.3 | 58.3 | 80.7 | 71.6 | | 55.5 |
| Victory | white | | | 9.9 | 67.0 | 89.6 | 77.4 | | 61.0 |
| 1916-1918 | | | | | | | | | |
| Swedish Select | white | | | | 62.4 | 82.8 | 71.4 | | 72.2 |
| Alexander | white | | | | 54.7 | 91.7 | 61.0 | | 69.1 |
| Alexander No. 61601 | white | | | | 56.2 | 90.9 | 64.3 | | 70.4 |
| Canadian Regener- ated Swedish Select | white | | | | 53.0 | 86.2 | 71.9 | | 70.4 |
| Canadian New Alberta | white | | | | 58.1 | 84.5 | 62.5 | | 68.4 |
| Golden Rust Proof | yellow | | | | 63.9 | 88.8 | 62.7 | | 71.5 |
| Iowa No. 103 | white | | | | 60.8 | 72.3 | 53.0 | | 62.0 |
| Minnesota No. 281 | white | | | | 52.6 | 82.9 | 66.1 | | 67.2 |
| Minnesota No. 295 | white | | | | 49.4 | 92.0 | 60.0 | | 67.1 |
| Miracle | white | | | | 55.0 | 78.2 | 70.0 | | 67.7 |
| Success No. 05402 | white | | | | 53.7 | 89.5 | 73.9 | | 72.4 |
| White Banner | white | | | | 57.1 | 89.0 | 63.0 | | 69.7 |
| Wisconsin Pedigree No. 1 | white | | | | 61.3 | 78.5 | 81.6 | | 73.8 |
| Worthy | white | | | | 54.3 | 82.8 | 67.8 | | 68.3 |
| 1917-1918 | | | | | | | | | |
| Swedish Select | white | | | | | 82.8 | 71.4 | | 77.1 |
| Idaho White | white | | | | | 88.7 | 67.4 | | 78.0 |
| O. A. C. No. 72 | white | | | | | 86.1 | 63.3 | | 74.7 |
| Schoenen | white | | | | | 85.8 | 73.1 | | 79.4 |
| Wisconsin Pedigree No. 5 | white | | | | | 80.3 | 69.4 | | 74.8 |

¹ Calculated yield

Table II shows some marked differences between varieties in yield and earliness.

Such varieties as Scotch Champion, Early Champion, Kherson, Sixty Day, Early Illinois, Fourth of July, and Iowa No. 103 are all early varieties and generally fall below the check variety in point of yield. The best yielding varieties include the Great Dakota, Silvermine, Big Four, Green Mountain, Black Tartarian, National, Welcome, White Bedford, Schance and Seger, the latter being of Swedish origin. The Great Dakota, Silvermine, National and Big Four mature about the same time as the Swedish Select. The Black Tartarian and Welcome mature a day earlier than Swedish Select, while the White Bedford, Schance and Seger mature from one to three days later than the Swedish Select. The question of maturity is an important one in connection with the nature of the season. In a season of extreme drought and high temperature, a late maturing variety is greatly reduced in yield and quality. In a season favorable for oats, an early maturing variety produces very much less than those later in maturity, while in a season both hot and dry, the early maturing varieties show to much better advantage. Therefore, it is advisable to select a variety that is medium in maturity and will measure up well under average conditions. The southern part of the State generally will obtain the best results from the earlier maturing varieties.

IMPORTED SEED.—Questions frequently arise concerning the importation of seed from other sections. Most experiments seem to indicate that there is a slight increase in yield to be gained by using northern grown seed but this is not sufficient to pay for the extra trouble and cost. The Ohio Station's¹ results indicate that seed oats from the north and north-west may be expected to yield about the same as home grown seed and that imported varieties gain little by acclimatization. The Illinois Station² says, "A six-year average, covering 32 tests with northern oats and 34 tests with home-grown oats, shows that the northern-grown seed produced 3.0 bushels more per acre than the home-grown seed. This difference is scarcely large enough to justify the extra expense and trouble of shipping in the northern seed oats."

At the Indiana Station, two tests have been conducted to determine the adaptation of imported seed as compared with home grown seed. In one experiment, lasting seven years, a fresh seed of Sixty Day oats was secured each year from Kansas and North Dakota and compared with home grown seed, all having come from one source at the beginning of the experiment. As the average for the seven-year period, the Kansas grown seed produced 51.2 bushels, the North Dakota seed, 52.4 bushels and the home grown seed 50.2 bushels per acre. In the other experiment lasting three years, Wisconsin grown National oats were imported each year and grown beside home grown National originally from the same source. The average yields for the three years were 58.4 bushels per acre for the Wisconsin grown seed and 57.6 bushels for the home grown seed.

In the light of the data from Indiana, Ohio and Illinois, it would seem that oats yields can be maintained with the continuous use of home

¹ Ohio Agricultural Experiment Station Bulletin No. 257

² Illinois Agricultural Experiment Station Bulletin No. 195

grown seed, especially where cleaned and graded seed is used that has been treated to reduce disease to the minimum. Too frequently a good variety is discarded by the farmer, because he thinks it has "run out." Neglected varieties will surely deteriorate but properly cared for varieties will continue to give good results indefinitely. After a variety has once proven its worth, continuous careful attention to seed selection will improve its adaptation to the local conditions and there need be no fear of "running out."

SPRING BARLEY

The same general statements so far as time of seeding and method and rate of seeding are concerned, hold true for spring barley as for oats. Hot weather the latter part of the growing season injures the yield and the quality of barley even more than oats. For this reason, the earlier the seeding the better it is for the crop.

Earliness is a desirable quality for a variety to have in addition to yielding power. These two characteristics will contribute a great deal towards making barley culture profitable.

TABLE III.—Summary of Spring Barley Variety Tests, 1905-1918

| Varieties grouped by years in test | Yields of grain in bushels per acre | | | | | | | | Average |
|---------------------------------------|-------------------------------------|-------------------|------------------|------|-------------------|------|------|--|---------|
| | 1905 | 1906 | 1907 | 1908 | 1909 | | | | |
| 1905-1909 | | | | | | | | | |
| Success Beardless | 20.6 | 21.7 | 16.2 | 21.3 | 30.5 | | | | 22.1 |
| Black Hulless | 16.8 | 18.6 | 15.0 | 14.4 | 31.3 | | | | 19.2 |
| Giant White | | | | | | | | | |
| Hulless | 16.4 | 18.7 ¹ | 9.3 | 13.2 | 35.4 | | | | 18.6 |
| Great Beardless | 20.6 | 23.6 | 17.3 | 15.7 | 32.2 | | | | 21.9 |
| Highland Chief | 20.0 | 20.9 | 9.0 | 16.3 | 37.6 | | | | 20.8 |
| Manshury | 20.4 | 30.3 | 10.0 | 13.4 | 47.1 | | | | 24.2 |
| Moravian or Hanna | 19.6 | 24.8 | 8.4 | 17.7 | 33.1 | | | | 20.7 |
| Silver Beardless | 17.5 | 24.0 | 11.8 | 14.4 | 32.7 | | | | 20.1 |
| Silver King | 22.3 | 33.6 | 21.2 | 19.0 | 46.3 | | | | 28.5 |
| | 1908 | 1909 | 1910 | 1911 | 1912 | 1913 | 1914 | | |
| 1908-1914 | | | | | | | | | |
| Success Beardless | 21.3 | 30.5 | 45.7 | 20.7 | 37.8 | 7.3 | 6.4 | | 24.3 |
| Canadian No. 21 | 18.8 | 48.0 | 41.8 | 19.9 | 55.0 | 7.1 | 5.9 | | 28.1 |
| Oderbrucker | 21.1 | 41.3 | 42.0 | 18.6 | 37.5 | 9.0 | 3.2 | | 24.7 |
| University No. 105 | 19.7 | 43.7 | 43.2 | 16.2 | 34.4 | 5.2 | 5.2 | | 23.9 |
| No. 986 | 8.8 ¹ | 31.3 | 32.3 | 0.1 | 4.6 | 2.7 | 4.9 | | 12.1 |
| | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 | 1917 | | |
| 1911-1917 | | | | | | | | | |
| Success Beardless | 20.9 | 37.8 | 7.3 | 6.4 | 20.5 | 28.7 | 48.8 | | 24.3 |
| Chevalier | 9.1 | 42.0 | 5.4 | 3.0 | 14.3 | 26.0 | 37.3 | | 19.6 |
| Hannchen | 17.8 | 55.5 | 8.7 | 8.1 | 17.9 | 35.2 | 50.5 | | 27.7 |
| Primus | 3.8 | 23.8 ¹ | 4.6 ¹ | 0.0 | 12.8 | 23.4 | 45.7 | | 16.3 |
| Princess | 4.9 | 56.1 | 3.7 | 6.3 | 24.8 | 33.6 | 44.9 | | 24.9 |
| Reed's Triumph | 5.1 | 38.4 | 5.8 | 6.2 | 14.2 | 29.2 | 65.6 | | 23.5 |
| Sexrads | 17.6 | 46.2 | 8.7 | 6.3 | 18.1 | 33.9 | 51.8 | | 26.1 |
| | 1914 | 1915 | 1916 | 1917 | 1918 | | | | |
| 1914-1918 | | | | | | | | | |
| Success Beardless | 6.4 | 20.5 | 28.7 | 48.8 | 42.5 | | | | 29.4 |
| Chevalier II | 2.5 | 17.2 | 24.5 | 40.3 | 33.0 | | | | 23.5 |
| Gold | 2.3 | 16.0 | 32.7 | 48.8 | 19.0 | | | | 23.8 |
| Stoeckinger | 5.1 | 16.0 | 31.3 | 38.3 | 59.3 ¹ | | | | 26.0 |
| Swanneck | 1.9 | 16.8 | 30.7 | 45.8 | 29.1 | | | | 24.9 |

¹ Calculated yield

A comparison of Table III with Table II will show that barley, on the average, has produced about one-half as many bushels per acre as oats. On this basis the price of barley would have to be twice the price of oats per bushel to make it equally profitable as a market crop. In the average yields for the State, however, (see page 4), barley compares favorably with oats and not only yields a larger profit per acre when used as a market crop but also yields a considerably larger amount of digestible nutrients for feeding purposes. According to the average prices of the two grains (see page 4) it takes 25 bushels of barley to

be equal to 40 bushels of oats. In total digestible nutrients produced, 23.5 bushels of barley are worth 40 bushels of oats.

Silver King, Canadian No. 21 and Hannchen, all bearded varieties, have produced the largest average yields among the varieties tested at this station, as compared with Success Beardless which has been used as the check in all groups. Where beardiness is objectionable, the Success Beardless is the most generally satisfactory variety to use in this part of the country.

SPRING WHEAT

Spring wheat in Indiana is not a crop of much importance. About 2000 acres are grown annually and the average yield per acre is considerably below the average yield of winter wheat. The growing season for this crop is too hot, particularly during the ripening period. In cool seasons, however, very satisfactory yields have been reported. In the last two years some farmers reported yields as high as 30 to 35 bushels per acre and this has caused many inquiries concerning this crop to be directed to the Station.

In the main, this department regards the crop as too uncertain to recommend it for general sowing. Some years there have been total failures, while in other years the yields have reached as high as winter wheat. It is quite probable that the best success with this crop may be expected in the northern part of the State where the average summer temperature is several degrees lower than in the southern part of the State.

TABLE IV.—Summary of Spring Wheat Variety Tests, 1908-1918

| Varieties grouped by years in test | Yields in bushels per acre | | | | | | | | | Average |
|---------------------------------------|----------------------------|------|------|-------------------|------|-------------------|------|-------------------|------|---------|
| | 1908 | 1909 | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 ¹ | | |
| 1908-1915 | | | | | | | | | | |
| Kubanka (check) | 18.6 | 16.5 | 28.1 | 5.9 | 17.8 | 14.8 | 3.7 | | | 13.2 |
| New Minnesota No. 163 | 10.0 | 19.0 | 18.8 | 5.9 | 16.9 | 12.7 | 3.6 | | | 10.9 |
| | 1912 | 1913 | 1914 | 1915 ¹ | | | | | | |
| 1912-1915 | | | | | | | | | | |
| Kubanka (check) | 17.8 | 14.8 | 3.7 | 0.0 | | | | | | 9.1 |
| Marquis | 19.5 | 9.7 | 2.9 | 0.0 | | | | | | 8.0 |
| New Marvel | 16.4 | 14.6 | 4.2 | 0.0 | | | | | | 8.8 |
| New Minnesota No. 163 | 16.9 | 12.7 | 3.6 | 0.0 | | | | | | 8.3 |
| Regenerated Red Fife | 14.7 | 11.7 | 3.1 | 0.0 | | | | | | 7.4 |
| | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 ¹ | 1916 | 1917 | 1918 | |
| 1910-1918 | | | | | | | | | | |
| Kubanka (check) | 28.1 | 5.9 | 17.8 | 14.8 | 3.7 | 0.0 | 25.0 | 23.8 | 24.1 | 15.9 |
| New Marvel | 15.0 | 6.8 | 16.4 | 14.6 | 4.2 | 0.0 | 14.5 | 26.8 | 24.7 | 13.7 |
| | 1916 | 1917 | 1918 | | | | | | | |
| 1916-1918 | | | | | | | | | | |
| Kubanka (check) | 25.0 | 23.8 | 24.7 | | | | | | | 24.5 |
| New Minnesota No. 169 | 16.0 | 24.2 | 21.5 | | | | | | | 20.6 |

¹ The crop of 1915 was a complete failure, due to the ravages of Hessian fly and red rust, but was counted in obtaining the average yield

Table IV shows the results of trials with different varieties of spring wheat on the Station plots. These varieties have frequently produced seed of very poor quality. Marquis and Regenerated Red Fife are the two most promising varieties for Indiana conditions. Kubanka, a macaroni wheat, is a hard spring wheat of the Durum type and has given very creditable yields as compared with spring wheats of the ordinary bread-making varieties. Spring wheat in Indiana seems to be particularly subject to blight and scab as well as shrivelling of the grain due to hot weather. The cultural requirements for spring wheat are very similar to those required for oats. The rate of seeding is the same as for winter wheat.

SPRING EMMER

Spring emmer has been highly spoken of for feeding purposes. It, however, has too high a per cent. of hull to make it of any particular value as compared with other spring grains. Only a very small acreage was reported for Indiana in the last census, with an average yield of a little less than 20 bushels per acre, including hull. It is not to be recommended for general use in this state.

SPRING RYE

Not a great deal is known about spring rye. The Station has grown it during three different years, 1910, 1911 and 1918, but definite conclusions cannot be drawn from the limited data at hand. The average yield for the three years was 29.1 bushels per acre, while in the same years the average yield of winter rye was 34.9 bushels per acre. Spring rye does not seem to have any particular place among grain crops in Indiana and very little of it is produced.

COMPARATIVE YIELDS OF SMALL GRAINS

For the purpose of comparison, to give an idea of what may be expected from the various small grains in Indiana, attention is called to the yields secured on the trial grounds of the Station at LaFayette during the last nine years.

TABLE V.—Comparative Yields of All Small Grains

| Kind of grain | Years tested and yields in bushels per acre | | | | | | | | | |
|---------------|---|------|------|------|------|------------------|------|------|------|---------|
| | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 | 1917 | 1918 | Average |
| Spring wheat | 15.0 | 6.8 | 16.4 | 14.6 | 4.2 | 0.0 ¹ | 14.5 | 26.8 | 24.7 | 13.7 |
| Spring barley | 45.7 | 20.9 | 37.8 | 7.3 | 6.4 | 20.5 | 28.7 | 48.8 | 42.5 | 28.7 |
| Oats | 39.7 | 25.2 | 70.5 | 35.3 | 15.6 | 69.8 | 62.4 | 82.8 | 71.4 | 52.6 |
| Spring emmer | 32.2 | | 33.1 | 16.5 | 8.7 | 24.5 | | | | |
| Spring rye | 29.8 | 16.6 | | | | | | | 40.8 | |
| Winter wheat | 18.5 | 28.3 | 31.2 | 34.2 | 27.6 | 37.6 | 10.7 | 34.1 | 40.8 | 29.2 |
| Winter rye | 32.5 | 30.0 | 54.7 | 34.8 | 23.0 | 46.2 | 40.0 | 39.7 | 42.1 | 38.7 |

¹ The spring wheat crop of 1915 was a complete failure due to Hessian Fly and rust but the year was included in making up the average yield

In Table V, it will be noted that the winter grains have been much more profitable than the spring grains. Oats have been the most profitable of the spring grains. Winter wheat and winter rye have been about equal in money value. At the average farm prices (see page 4) for the nine years for which the yields are shown in Table V, the gross returns per acre for the principal crops have been: oats, \$23.14; barley, \$20.38; spring wheat, \$17.26; winter wheat, \$37.08, and winter rye, \$37.54.

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Fig. 1. Red clover is the most practical legume for ordinary farm use in Indiana

THE VALUE OF LEGUMES ON INDIANA SOILS

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The successful growth of clover or other leguminous crops is an essential factor in maintaining the fertility of most Indiana soils. Legumes are soil renovators in a marked degree and may be very profitably employed in building up run-down soils. Without legumes, the problems of maintaining adequate supplies of organic matter and nitrogen in soils are difficult; with legumes, they are simple.

To produce maximum crops, the ordinary soils of the State should bear clover or some other legume at least once every three or four years and most of the produce should go back to the land in one form or another. In a rotation of corn, wheat and clover, averaging 60 bushels of corn, 25 bushels of wheat and two tons of clover hay to the acre, where the corn stalks and second growth clover are left on the ground, the wheat grain sold, the ear corn, clover hay and wheat straw utilized as feed and bedding and the manure carefully saved and returned to the land, the nitrogen balance in the soil will be just about maintained.

The importance of phosphorus, lime and manure on Indiana soils has been shown in recent bulletins of this station. The results of field experiments reported in this bulletin show that the inclusion of a fair proportion of clover or other legumes in the crop rotation is fully as important in maintaining soil fertility.

THE VALUE OF LEGUMES ON INDIANA SOILS

A. T. WIANCKO

S. D. CONNER

S. C. JONES

SUMMARY

From 25 to 50 per cent. of the nitrogen and humus of Indiana soils has been used up or lost by the system of cropping they have undergone.

The increased growth of legumes is the easiest and most profitable method of restoring nitrogen and organic matter to run-down soils.

The annual acreage of legumes grown in Indiana on the average, is not more than 1,000,000 acres out of a total of over 11,000,000 acres in field crops. The acreage of legumes should be increased at least three times.

Clover and other legumes are the only crops that have the power of utilizing free nitrogen from the air. A two-ton crop of clover will gather about 80 pounds of nitrogen.

Besides increasing the nitrogen and organic matter, legumes improve the physical, chemical and biological conditions of the soil.

In experiments conducted in various parts of Indiana, crop rotations containing legumes produced 4.6 bushels of corn and 4.7 bushels of wheat per acre more than rotations in which no legumes were grown. These averages are for 61 crops on eight experiment fields during the last 12 years.

Clover and other legumes may fail to do well because of soil acidity, poor drainage, lack of phosphate, potash or organic matter.

To succeed with clover, wet soils must be drained; acid soils must be limed; phosphate will nearly always be needed and sometimes potash may be required.

Clover is the most practical legume for general farm use in Indiana. When clover fails, soybeans and cowpeas are good substitutes to fill its place in the rotation.

The more recently introduced legumes, such as alfalfa, soybeans, sweet clover and vetch, will usually need to be specially inoculated with their particular nitrogen gathering bacteria when first used.

Some legumes are more tolerant of poor soil conditions than red clover. Alsike is best for wet soils. Soybeans and cowpeas are best for acid soils, while hairy vetch and cowpeas may be grown on light sands.

INTRODUCTION

The successful growth of clover or other leguminous crops is an essential factor in maintaining the fertility of most Indiana soils. Legumes are soil renovators in a marked degree and may be very profitably employed in building up run-down soils. Without legumes, the problems of maintaining adequate supplies of organic matter and nitrogen in soils are difficult; with legumes, they are simple.

All the light colored soils of the State are deficient in organic matter and nitrogen and under ordinary systems of cropping are becoming more

and more depleted of these essential constituents. In a recent chemical examination of a large number of representative soil samples from fields which had been under cultivation for from 50 to 75 years and from adjoining fence rows or woods areas of the same soil types that had never been under cultivation, it was found that on the average, the cultivated soils had lost 26 per cent. of their total organic matter, 47 per cent. of their humus and 28 per cent. of their nitrogen content. These losses have had a serious effect upon the crop producing powers of the fields concerned and in many cases they are no longer yielding profitable returns.

To produce maximum crops, the ordinary soils of Indiana should bear clover or some other legume at least once every three or four years and most of the produce should go back to the land in one form or another. In a rotation of corn, wheat and clover, averaging 60 bushels of corn, 25 bushels of wheat and two tons of clover hay to the acre, where the corn stalks and second growth clover are left on the ground, the wheat grain sold, the ear corn, clover hay and wheat straw utilized as feed and bedding and the manure carefully saved and returned to the land, the nitrogen balance in the soil will be just about maintained.

To get an idea of how far short farmers are falling in this matter of maintaining the nitrogen balance in the soil, the acreage of legumes and the acreage of non-legumes annually produced on the farms of Indiana should be compared.

Average Annual Acreages of Field Crops Produced in Indiana During
the Last 10-Year Period, 1908-1917

| | |
|---|-----------------|
| Corn | 4,884,300 acres |
| Hay | 2,056,300 acres |
| Wheat | 2,136,700 acres |
| Oats | 1,713,200 acres |
| Rye | 104,900 acres |
| Potatoes | 84,400 acres |
| Miscellaneous field crops estimated.... | 125,000 acres |

Total acreage..... 11,104,800 acres

Of this total acreage, it is estimated that not over 1,000,000 acres (included under hay and miscellaneous) are in clover and other legumes. This means that only about one-eleventh of the total acreage of field crops in Indiana is legumes. It should be at least three times as much if soil fertility is to be economically maintained.

Ordinary crops of corn, oats, wheat and grass on the average will take from the soil upwards of 40 pounds of nitrogen per acre per year. There is also more or less unavoidable loss of nitrogen through leaching and the natural processes going on in the soil. Without legumes, even under the best systems of management, only a small portion of the nitrogen thus removed can be returned to the soil. To supply it in the

form of commercial fertilizers is out of the question on the ground of expense. The only practical means of making good the nitrogen losses or increasing the supply in the soil is the growing and turning under of clover or other legumes.

HOW LEGUMES INCREASE SOIL FERTILITY

The value of clover and other legumes in increasing the yields of grain and other non-leguminous crops grown in a rotation has long been recognized but only within the last half century has it been known that the principal reason for this is the fact that legumes add nitrogen to the soil. They do this by means of bacteria which develop in nodules on their roots.¹ These bacteria have the power of collecting nitrogen from the inexhaustible supplies in the atmosphere. Each acre of the earth's surface has above it 70,000,000 pounds of nitrogen. The nodule-forming bacteria, which normally live on the roots of legumes, feed upon this atmospheric nitrogen and convert it into forms which can be utilized by succeeding crops of other kinds, such as corn, small grains and grasses, which are not able directly to utilize atmospheric nitrogen; only the legumes can do this. A two-ton crop of clover will require about 120 pounds of nitrogen, about 80 pounds of which will be gathered from the air, and will be a clear gain to the soil if the crop is turned under. The roots and stubble of such a crop will contain about half as much nitrogen as the tops, or about 40 pounds per acre. Since legumes can utilize available soil nitrogen as well as other crops, a certain amount of the nitrogen contained in them will have come from the soil. For the purpose of calculations, it is commonly estimated that the amount of nitrogen thus taken from the soil by legumes is about equal to that contained in their roots and stubble. This means that if the top growth of the crop is removed from the land there is no gain of nitrogen in the soil. It is only when top growth is plowed under, either directly or in the form of manure, that the soil can be built up in nitrogen, and the amount added will be directly proportional to the amount of material plowed under.

In a trial of soybean and cowpea cover crops after wheat on the Purdue Farm experiment field during three years (1909-1911), soybeans made an average of six tons and cowpeas an average of 7.1 tons of green top growth per acre. The soybeans contained 92.4 pounds of nitrogen in the tops and 13 pounds in the stubble and roots to the depth of 18 inches. The cowpeas contained 112.5 pounds of nitrogen in the tops and 16.8 pounds in the roots and stubble.* These cover crops, turned under green, added an average of over 100 pounds of nitrogen to the soil if we consider that an amount of nitrogen equal to that in the roots and stubble came from the soil. In experiments at the Rhode Island and Delaware experiment stations it was found that crops of clover, soybeans, cowpeas and vetch added an average of 112 pounds of nitrogen to the soil in a single season. These additions of nitrogen to the soil by

¹ It is now known that *Azotobacter* and related forms of bacteria are able to fix atmospheric nitrogen as well as the legume bacteria. These bacteria require a supply of decomposable organic matter for food and do not live on the live roots of plants. They also require an abundance of lime and the other soil conditions that are favorable to the growth of clover. Undoubtedly, the turning under of a legume crop residue will supply the decaying organic matter that *Azotobacter* require and in this way additional nitrogen may be fixed.

legumes are well worth while considering what they would cost if added in the form of commercial fertilizer. To supply 100 pounds of nitrogen in the form of manure or fertilizer would require 10 tons of manure or 650 pounds of nitrate of soda or two and one-half tons of a 2-8-2 fertilizer.

Legumes can also be utilized for supplying organic matter to the soil if turned under and by their use in this way, this important soil constituent as well as nitrogen may be maintained or increased at will and in the most profitable manner. Other crops than legumes will provide organic matter but they cannot of themselves add nitrogen. Leguminous organic matter is therefore the most valuable. Most legumes have a marked mellowing effect upon the soil and leave it in good physical condition for succeeding crops. When used as cover crops, legumes not only add nitrogen from the air but also conserve and make more available other plant foods which they gather from the soil. By means of their deep root systems and strong feeding powers legumes bring up considerable quantities of mineral matter from the subsoil which, when they decay, is made available to other crops following. The decay of legumes in the soil also favors the work of beneficial soil bacteria which bring about favorable chemical reactions upon mineral plant foods, making them available to succeeding crops. It has been estimated that a good crop of clover has in its tops and roots as much plant food as 10 tons of ordinary manure.

Many examples of the beneficial effects of legumes upon the fertility of the soil may be found in the work of other experiment stations. In an experiment at the New Jersey Station where wheat and rye have been grown in continuous culture since 1909, a portion of each plot has been treated with a cowpea or soybean cover crop, seeded after harvest and turned under in the fall before reseeding to wheat or rye. As the average for the first eight years (1909 to 1916 inclusive) the yield of wheat has been 19.7 bushels per acre after the legume cover crop and 11.6 bushels without the legume cover crop. The yield of rye has been 22.3 bushels with the legume cover crop and 16.7 bushels without it.¹ At the Maryland Station crimson clover was plowed under for corn and potatoes and the yields compared with those on untreated land. On the untreated land, the yield of corn was 39.3 bushels and the yield of potatoes 52.8 bushels per acre. On the land where crimson clover had been plowed under, the yield of corn was 46 bushels and the yield of potatoes 72.3 bushels per acre.² At the Alabama Station, sorghum after sorghum stubble yielded 3.65 tons; after cowpea and velvet bean stubble, 5.73 tons; after cowpea and velvet bean vines turned under, 6.24 tons of forage per acre.³ The Rothamsted Experiment Station in England reports an experiment where clover residues were plowed under in 1911 and followed with oats in 1912 and barley in 1913. The yield of oats was 41 bushels and of barley 39.3 bushels per acre on the clover residue plots as compared with 17 bushels of oats and 34 bushels of barley on untreated land. At Ottawa, Canada, land that was in clover in 1900 yielded 25.8 tons of silage corn in 1901; 70.59 bushels of oats in 1902; 195.33 bushels

¹ New Jersey Agricultural Experiment Station Bulletin No. 305

² Maryland Agricultural Experiment Station Bulletins Nos. 31, 38 and 46

³ Alabama Agricultural Experiment Station Bulletin No. 120

of potatoes, 31.48 tons of carrots and 22.3 tons of sugar beets per acre in 1903. The corresponding yields on uncloved land were: silage corn, 20.08 tons; oats, 58.82 bushels; potatoes, 175.33 bushels; carrots, 20.32 tons; sugar beets 8.6 tons per acre.¹ At the Nappan Farm in Nova Scotia, wheat, oats and barley grown continuously with and without a clover cover crop, gave the following yields in 1905: without the clover cover crop: wheat, 34.33 bushels; oats, 41.18 bushels; barley, 32.71 bushels per acre; with the clover cover crop, the yields were: wheat, 40 bushels; oats, 55.29 bushels; barley, 37.29 bushels per acre.²

The importance of phosphorus, lime and manure on Indiana soils has been shown in recent bulletins of this station. The results of field experiments reported in this bulletin show that the inclusion of a fair proportion of clover or other legumes in the crop rotation is fully as important in maintaining soil fertility.

THE SCOTTSBURG AND LITTLES EXPERIMENTS

The crop rotation experiments on the Scottsburg field in Scott County and on the Littles field in Pike County present two good examples of the beneficial effect of legumes upon the fertility of the soil. In Table I are shown the average yields of wheat after clover and after corn for a period of nine years on land receiving no treatment other than the rotation. In the first case the rotation is wheat, wheat and clover with a cowpea inter crop or cover crop sown after harvesting the first wheat crop and turned under or disked in for the second wheat crop in the fall of the same season. In the second case, the rotation is corn, wheat and timothy.

TABLE I.—Effect of Legume on Wheat Yields on Scottsburg and Littles Experiment Fields, Average of Nine Years on Each Field, 1907-1915

| Particulars | Average wheat yields—bushels per acre | | |
|---|---------------------------------------|---------|---------|
| | Scottsburg | Littles | Average |
| Wheat after clover in a wheat (cowpea intercrop), wheat and clover rotation | 11.9 | 16.5 | 14.2 |
| Wheat after corn in a corn, wheat and timothy rotation | 7.6 | 9.4 | 8.5 |
| Difference in favor of wheat after clover | 4.3 | 7.1 | 5.7 |

The average yields of wheat have been small, partly on account of frequent damage by Hessian fly and winter-killing and partly because of the impoverished condition of the soil. Only the results on the unfertilized check plots are shown in this comparison because the fertilized plots received different treatments in the two rotations and therefore are not strictly comparable. The differences shown in the unfertilized yields are due to the difference in the rotations only. Where the wheat follows

¹ Dominion Experimental Farms Report, 1903

² Dominion Experimental Farms Report, 1905

corn the yields are much smaller in both cases than where it follows clover. There are doubtless other limiting factors on this impoverished land but the beneficial effect of the legume is clearly shown in both cases. For the wheat following clover, the ground was summer plowed a month to six weeks after harvesting the clover hay crop and the seed bed otherwise prepared in the usual way. Where the wheat followed corn, the entire corn crop was removed and the land prepared by disking and harrowing before drilling the wheat. The seeding was done at the same time in all cases. The soil of the Scottsburg field is Volusia silt loam, locally known as "yellow clay." The soil of the Littles field has not been classified, but is a grayish-brown silt loam common in that section of the State.

THE WILSON FARM EXPERIMENTS

In the crop rotation experiments on the Wilson Farm, located on Miami and Clyde silt loam ("black and clay") soil of fair fertility, there are three rotations in which wheat follows soybeans used as a grain crop. In several other rotations the wheat follows corn. A beneficial legume effect is shown in all cases where wheat follows soybeans. The yields of wheat in these rotations have been considerably larger than in adjoining rotations where wheat follows corn with otherwise similar treatment. The average yields and the difference in favor of the soybeans are shown in Table II.

TABLE II.—Effect of Legume vs. Corn on Succeeding Wheat Yields, Average Three Years on Wilson Farm, 1916-1918

| Particulars | Average yields per acre | | |
|---|-------------------------|--------------|-------------------------------|
| | Wheat bushels | Straw pounds | Value of produce ¹ |
| Wheat after soybeans (average of 3 rotations for the 3 years, or 9 crops) | 34.0 | 3117.0 | \$75.79 |
| Wheat after corn (average of 3 rotations for the 3 years, or 9 crops) | 29.6 | 2817.0 | 66.24 |
| Difference in favor of wheat after soybeans | 4.4 | 300.0 | 9.55 |

¹ Throughout this bulletin, where money values are used, corn has been valued at \$1.00 and wheat at \$2.00 per bushel, stover at \$6.00, straw at \$5.00 and hay at \$20.00 per ton

Good yields of wheat have been secured in both the corn and soybean rotations but the wheat after soybeans has averaged 4.4 bushels per acre better than the wheat after corn in otherwise good rotations. Where the wheat follows soybeans, the rotations are as follows: corn, soybeans and wheat; corn, soybeans, wheat and clover; corn, corn, soybeans, wheat and clover. Where the wheat follows corn, the rotations are as follows: corn, wheat and alfalfa; corn, wheat and sweet clover; corn, wheat, clover and timothy.

THE NORTH VERNON EXPERIMENTS

In the soil fertility investigations on the North Vernon field there is included a comparison of a corn, wheat and clover rotation with a corn, wheat and timothy rotation to determine the relative effects of the clover and timothy upon the fertility of the soil. In both cases the soil has been limed and receives a dressing of six tons of stable manure once every three years for corn. The soil is a whitish silt loam, naturally very low in organic matter and nitrogen and before being limed was very acid.

In Table III are shown the average yields of corn, wheat and hay in the two rotations, together with the differences in favor of the rotation having clover instead of timothy as the hay crop.

TABLE III.—Clover vs. Timothy in Rotation with Corn and Wheat, North Vernon Experiment Field, 1914-1918

| Rotation | Average yields per acre | | | | |
|-------------------------------|----------------------------|-----------------------------|-----------------------------|----------------------------|--------------------------|
| | Corn bushels 1914-18 | Stover pounds 1914-18 | Wheat bushels 1915-18 | Straw pounds 1915-18 | Hay pounds 1916-18 |
| Corn, wheat and clover | 77.1 | 4926.0 | 19.8 | 1890.0 | 4147.0 |
| Corn, wheat and timothy | 73.9 | 4413.0 | 15.4 | 1410.0 | 2600.0 |
| Difference in favor of clover | 3.2 | 513.0 | 4.4 | 480.0 | 1547.0 |

It will be seen that all the crops have produced larger yields in the rotation containing clover. The relatively small difference in the average yields of corn is doubtless due to the fact that this crop receives the manure. Six tons of manure per acre are plowed under for corn on the timothy and clover plots alike. This manuring seems to meet most of the needs of the corn crop and largely masks the legume effect. The wheat and hay, however, which follow the corn in the next two years, get only what is left of the manure and the clover plot shows up to much better advantage. Clover has increased the yields of corn by 3.2 bushels, wheat by 4.4 bushels, and hay by 1547 pounds per acre. Expressed in terms of money, the corn, wheat and clover rotation has been worth an average of \$30.21 more than the corn, wheat and timothy rotation, or \$10.07 per acre per year.

THE WORTHINGTON EXPERIMENTS

On the Worthington experiment field in Greene County, clover and timothy are being compared as to their effect upon the fertility of the soil and the total value of the rotation just as at North Vernon on limed and similarly manured land. The soil on this field, which is a gray silt loam (Knox), is somewhat better supplied with organic matter and nitrogen than the North Vernon soil but was considerably run down. On account of clover failures due to extremely dry weather in the earlier years of the experiment, which was begun in 1912, no comparison of the clover and timothy effects was possible until the 1916 corn crop, which was the

first that followed clover on one plot and timothy on the other. The 1917 wheat crop and the 1918 hay crop were the first to follow the clover versus timothy treatment. The results are shown in Table IV.



Fig. 2. Effect of legume on wheat, Worthington field, 1917. Each shock is the produce of one-twentieth acre

Corn, wheat and timothy rotation
14.7 bushels wheat per acre

Corn, wheat and clover rotation
24.7 bushels wheat per acre

TABLE IV.—Clover vs. Timothy in Rotation with Corn and Wheat, Worthington Experiment Field, 1916-1918

| Rotation | Average yields per acre | | | | |
|-------------------------------|----------------------------|-----------------------------|-----------------------------|----------------------------|-----------------------|
| | Corn bushels 1916-18 | Stover pounds 1916-18 | Wheat bushels 1917-18 | Straw pounds 1917-18 | Hay pounds 1918 |
| Corn, wheat and clover | 46.5 | 2448.0 | 21.8 | 2113.0 | 3380.0 |
| Corn, wheat and timothy | 44.4 | 2162.0 | 15.7 | 1651.0 | 2280.0 |
| Difference in favor of clover | 2.1 | 286.0 | 6.1 | 462.0 | 1100.0 |

It will be seen that the corn and hay increases due to clover instead of timothy are somewhat smaller than at North Vernon, while the increase in wheat has been larger. There is no apparent explanation for the comparatively large increase in wheat unless it be that dry weather did not permit the corn to respond as fully to the clover, thus leaving more of a residue for the wheat. The small average yields of corn are at least partly due to unfavorable weather conditions, causing late planting and poor development. The total average value of the increase due to clover is, however, very similar to that at North Vernon, being \$27.12 per acre per rotation, or \$9.04 per acre per year.

EFFECT OF SOYBEANS VS. CORN ON WHEAT YIELDS AT NORTH VERNON AND WORTHINGTON

On the North Vernon and Worthington experiment fields there are comparisons of a soybean, wheat and clover rotation with a corn, wheat and clover rotation. In both cases a favorable legume effect is shown on the wheat yields. Table V shows the results.

TABLE V.—Effect of Soybeans and Corn on Succeeding Wheat Yields on North Vernon and Worthington Experiment Fields, Average of Five Years on Each Field, 1914-1918

| Rotation | Average wheat yields—bushels per acre | | |
|---|---------------------------------------|-------------|---------|
| | North Vernon | Worthington | Average |
| Soybeans, wheat and clover | 25.4 | 22.2 | 23.8 |
| Corn, wheat and clover | 22.8 | 19.8 | 21.3 |
| Difference in favor of wheat after soybeans | 2.6 | 2.4 | 2.5 |

The difference in the wheat yields after soybeans and after corn are in favor of the legume in both cases, being 2.6 bushels per acre at North Vernon and 2.4 bushels at Worthington. On both fields the land has been limed and the corn and soybeans receive six tons of manure and 200 pounds of acid phosphate and the wheat receives 200 pounds of a 2-8-4 fertilizer. Which of these two rotations will be the better in the long run it is too early to decide. The soybeans may not prove as profitable as the corn in a rotation already having one legume, but they do show a beneficial effect upon the yields of wheat.

THE PURDUE FARM EXPERIMENTS

On the old Purdue experiment field, which was started in 1889, several different systems of cropping are being compared. On one section of the field, corn is grown continuously with a rye cover crop. On another section, wheat is grown continuously with clover seeded in the spring and turned under after harvest. On another section, corn and wheat are rotated and clover is sown on the wheat and turned under the following spring for corn. On another section, a full three-crop rotation of corn, wheat and clover is grown. The results for the last eight years are shown in Table VI. The results prior to 1911 are not strictly comparable, because on the rotated land only one crop at a time was grown. In 1911, the rotated plots were divided into sections, so that all the crops in the rotation could be grown every year.

These experiments have not been altogether satisfactory on account of the droughty character of the soil which is very shallow and is underlaid by a deep bed of gravel. The results of these experiments are shown in Table VI.

TABLE VI.—Effect of Clover in Rotation on Corn and Wheat Yields, Purdue Farm Experiment Field, 1911-1918

| Rotation | Average yields per acre | | | |
|--|-------------------------|---------------|---------------|--------------|
| | Corn bushels | Stover pounds | Wheat bushels | Straw pounds |
| Corn continuously | 25.3 | 2345.0 | | |
| Wheat continuously | | | 14.6 | 1661.0 |
| Corn and wheat, with clover inter crop | 27.0 | 1950.0 | 17.7 | 1865.0 |
| Corn, wheat, clover | 32.2 | 2018.0 | 17.9 | 1736.0 |

It will be seen that the yields of corn have averaged 5.2 bushels more after clover in the three-year rotation than after wheat in the two-year rotation which has clover only as an inter crop, and 6.9 bushels more than where corn is grown continuously. The yields of wheat have been only slightly larger in the three-year rotation having a full crop of clover than in the two-year rotation where the clover stands only as an inter-crop but 3.3 bushels larger than under continuous wheat culture, where the young clover is plowed under shortly after wheat harvest. The relatively small legume effect in the three-year rotation is due partly to the fact that frequently the stand of clover was unsatisfactory on account of summer drought after wheat harvest. Another factor which operates against a better clover effect in these experiments, is the fact that only the grain crops are fertilized, meaning that the three-year rotation receives only two-thirds as much fertilizer per year as the two-year rotation.

THE WESTPORT EXPERIMENT

The soil fertility experiment field at Westport, Decatur County, is located on the same type of soil as the North Vernon field. It is a flat, whitish silt loam soil, naturally wet and sour. A clover and timothy, or legume and non-legume comparison is one of several subjects of study on this field and is repeated on both tiled and untilled land, with and without manure. This experiment was started in 1915 but the 1917 corn and the 1918 wheat crops were the first to follow the legume vs. non-legume treatment, which began in 1916. Both rotations were limed at the rate of four tons of ground limestone per acre in 1915 and the corn and wheat receive a phosphate and potash fertilizer in all cases.

TABLE VII.—Clover vs. Timothy in Rotation with Corn and Wheat, Westport Experiment Field, 1917-1918¹

| Rotation | Average yields per acre | | | | |
|----------------------------------|----------------------------|-----------------------------|--------------------------|-------------------------|--|
| | Corn bushels 1917-18 | Stover pounds 1917-18 | Wheat bushels 1918 | Straw pounds 1918 | Hay pounds |
| Corn, wheat and clover | 56.4 | 3178.0 | 19.8 | 1965.0 | None following clover vs. timothy treatment |
| Corn, wheat and timothy | 51.2 | 2953.0 | 14.4 | 1557.0 | |
| Difference in favor of clover | 5.2 | 225.0 | 5.4 | 408.0 | |

¹ These results are the averages of four plots each season (tiled and untilled, manured and unmanured)

Table VII shows the average yields of corn and wheat for the two rotations. Since half of the land in each rotation has been manured, the legume effect doubtless has been somewhat masked by the manure which was applied for corn on the clover and timothy land alike. It should be said, too, that there was a considerable amount of clover mixed with the timothy on the non-legume plots, probably 20 to 25 per cent. Nevertheless, the increase of 5.2 bushels of corn and 5.4 bushels of wheat in the corn, wheat, clover rotation over the corn, wheat, timothy is considerable and shows a good legume effect on this land.

THE FRANCISCO EXPERIMENT

The soil of the Francisco experiment field is typical of the hilly portion of the unglaciated area of southwestern Indiana. The surface soil is a yellowish or reddish silt loam with a reddish clay loam subsoil. The soils of this area are badly eroded and in many places gullied and are therefore very deficient in organic matter and nitrogen. They are also deficient in phosphorus and are usually acid. The experiment field lies on a ridge that has been under cultivation for about 30 years but is naturally much better preserved than the average land in the area. However, it has been responding very profitably to manure, lime, phosphate and legume treatments. This field was laid out in the fall of 1915 and so far there have been only two corn crops and one wheat crop following legumes in the legume rotation to compare with the same crops in the non-legume rotation. The field was started with cowpeas and millet in the place of clover and timothy. The clover seeded in the 1915-16 wheat crop failed on account of extremely dry weather and soybeans were substituted as the hay crop for 1917. This means that the 1917 corn crop and the 1918 wheat crop followed cowpeas and the 1918 corn followed soybeans as substitutes for clover in the corn, wheat and clover rotation. In the corn, wheat, timothy rotation, the 1917 corn and the 1918 wheat crop followed millet in the place of timothy in 1916.



Fig. 3. Effect of legume on corn, Francisco field, 1918. Each shock is the produce of one-twentieth acre
 Corn, wheat and timothy rotation 35.3 bushels corn per acre
 Corn, wheat and clover rotation 47.5 bushels corn per acre

TABLE VIII.—Legume vs. Timothy in Rotation with Corn and Wheat, Francisco Experiment Field, 1917-1918

| Rotation | Average yields per acre | | | | |
|-------------------------------|-------------------------|-----------------------|--------------------|-------------------|---|
| | Corn bushels 1917-18 | Stover pounds 1917-18 | Wheat bushels 1918 | Straw pounds 1918 | Hay pounds |
| Corn, wheat, and clover | 52.5 | 4192.0 | 20.4 | 1815.0 | None following legume vs. timothy treatment |
| Corn, wheat and timothy | 42.8 | 3647.0 | 13.7 | 1215.0 | |
| Difference in favor of legume | 9.7 | 545.0 | 6.7 | 600.0 | |

In Table VIII are shown the average corn and wheat yields in the legume and non-legume rotations and the difference in favor of the legume. The only difference in the treatment of the two plots is that the one has had a legume preceding the corn and wheat crops and the other has not. Both areas received three tons of ground limestone per acre in the fall of 1915. The very good increases of corn and wheat in the legume rotation over the non-legume rotation clearly show the value of cowpeas and soybeans as substitutes when clover fails.

CAUSES OF CLOVER FAILURES

Land that once produced good clover and now fails to do so has gotten out of condition in one way or another due to improper management. One of the first things to look for is injurious soil acidity. If this is found, liming is the remedy. Constant cropping and inadequate re-

turns may have so reduced the soil organic matter that this has become a limiting factor. Insufficient organic matter means bad physical conditions and the young clover plants die because the ground bakes, cracks and dries out badly. Reduction in organic matter also means less food for the nodule-forming, nitrogen-gathering bacteria and a lessening of the beneficial chemical reactions in the soil which make plant foods available and which are favored by decomposing organic matter. Poor management also results in reducing the available mineral plant foods in the soil, especially phosphorus, which at best is not abundant, and in some cases is the chief requirement to make clover do well again. Lack of available phosphorus usually goes hand in hand with lack of both lime and organic matter. Poor drainage is always detrimental to clover. Clover cannot stand "wet feet" and its natural deep rooting habit makes good drainage more important than in the case of grain crops.

When clover fails, farmers are sometimes led to believe that it needs artificial inoculation. This is seldom if ever the case in this part of the country where clover has been so generally grown that the clover bacteria are present everywhere. Fresh inoculation is not the remedy. The trouble will be found in some improper condition of the soil. All of these causes of clover failure can be remedied by proper soil treatment.

HOW TO SUCCEED WITH CLOVER

Considering the causes of clover failure as stated, it is evident that certain things must be attended to before success with this crop can be attained. Many acres of clover are sown each year, only to fail because of some improper soil condition which could easily be remedied. Fortunately, the ideal soil conditions for clover are also the most favorable for producing other crops. All ordinary soils can be profitably put into con-



Fig. 4. Effect of ground limestone on clover, North Vernon field, 1916. Each shock is the produce of one-twentieth acre.

Manure only
3560 pounds hay per acre

Manure and limestone
5520 pounds hay per acre

dition to produce clover, and what is good for clover will also be good for other legumes.

If the soil is wet and in need of aeration, tile drainage is the remedy. All heavy loam and clay soils will be benefited by tile drainage and this must be provided before other treatments can give the best results. The lines of tile should be placed not more than three to four rods apart. This applies to heavy uplands as well as to lowlands that do not drain out readily.

If the soil is acid it must be limed. Tests for acidity can be made by the county agricultural agent, or representative soil and subsoil samples can be sent to the Soils and Crops Department of the Experiment Station where they will be tested free of charge and the lime requirements reported. Ground limestone is the best and cheapest material for neutralizing soil acidity. Two tons per acre will be sufficient for medium or slight acidity. Some soils are so very acid that much heavier applications are needed. Other forms of lime may be used but they are usually more expensive.



Fig. 5. Effect of acid phosphate on clover, Westport field, 1918. Each cock is the produce of one-fortieth acre

**Lime, manure and acid phosphate
4280 pounds hay per acre**

**Lime and manure only
2560 pounds hay per acre**

Soils that have been heavily cropped and are out of condition will usually need available phosphorus. Acid phosphate, or some other available phosphate, such as bone meal or basic slag, should be applied heavily to the preceding grain crop. At least 300 pounds per acre should be applied so as to supply the needs of both the grain crop and the clover following. On limed land, the available phosphates are best. On slightly acid soils, heavy applications of raw rock phosphate may sometimes be used satisfactorily in the place of available phosphates for clover and other legumes. In such cases, the raw rock should be applied at the rate

of at least one ton per acre without the previous use of lime. Raw rock phosphate when applied to soil has an acid neutralizing power equal to about one-fourth that of ground limestone. When applied without lime to acid soils, the soil acids react with the raw phosphate, making some of it available as well as tending to neutralize some of the soil acidity. On very acid soils this is not sufficient and a liberal application of ground limestone should be made and this followed with an available phosphate.

If the soil is in need of organic matter as will be evidenced by its light color and bad physical condition, some form of decomposable organic matter must be provided. For this purpose, there is nothing better than a good dressing of manure. This not only supplies organic matter but also provides available plant food and favors beneficial bacterial action in the soil. When manure is not available, straw or other crop residues may be used or a green manuring crop grown and plowed under. Soybeans and cowpeas have been found to be excellent crops as green manures with which to begin the improvement of a run down soil. After such a crop has been turned under, if the other needs have been attended to, there will be no trouble in getting a stand of clover and when this is once well established the plowing under of the second growth will help out the manure and crop residues that may be returned to the soil to build it up in organic matter.

The most practical method of seeding clover is with a small grain crop. Seeding on wheat or rye in winter or spring is most common. At LaFayette, seedings made early in February on bare, frozen ground have been most satisfactory. The advantage of this practice over March seeding is that there is a better chance for the seed to settle into the soil by repeated freezing and thawing, thus preventing germination with the first warm day and killing by the next cold snap as often happens with March seedings. Top-dressing the wheat with manure or straw after seeding the clover will materially increase the chances of getting a satisfactory stand and should be done whenever possible. Late spring seeding on wheat should be done after the ground is dry enough to work. The ground should be lightly harrowed with a spike-tooth harrow, going crosswise of the wheat drills, and the clover seed sown immediately afterwards. By this method much of the seed will fall in the harrow marks or be washed in and covered by the next rain. The use of the special clover and grass seed disk drill is to be recommended wherever late spring seeding is regularly practiced and any considerable amount of seed is sown from year to year. Some successful farmers regularly make two seedings of clover, putting on half the seed in winter and half in spring.

Oats is not as good a crop with which to seed clover as wheat, because its more leafy growth shades the ground more and is thus more likely to smother the young clover plants. It also occupies the ground later into the summer and when harvested often leaves the tender clover exposed to damaging heat and drought. To get a strong growth of clover with oats, the oats must be seeded thinly so as to leave more room for the clover. Two bushels of oats to the acre should be the maximum when clover is seeded with it. The thinner stand of oats need not necessarily mean a smaller yield of grain, since the heads will be larger and the clover will certainly have a better chance to develop.

When a spring seeding of clover fails, too many farmers break the rotation and plant corn or some other grain crop again the following year. This is a mistake, because with each omission of clover the conditions that cause failure become worse. Under such conditions it would be much better to try summer seeding of clover or to use an annual legume to take its place in the rotation. Summer seeding of clover may be done on a specially prepared seed bed after harvesting the grain crop in which the spring seeding failed. The ground should be plowed right after harvest and worked down to a fine, compact seed bed and by repeated harrowing at intervals of 10 days or so, put into condition for sowing clover alone from the first to the middle of August, watching for a time when the moisture conditions are right and using eight to 10 pounds of seed per acre. Seeding should be done after, rather than before a rain, so as to avoid crusting of the ground before the clover can germinate and come up. The chances of success with such summer seeding are at least fair unless a prolonged period of drought is encountered. Some farmers are securing successful stands of clover by seeding in standing corn at the time of the last cultivation or later in the summer. This method, however, is more risky than seeding alone on specially prepared ground, because with the competition of the corn, the clover is more likely to fail for lack of moisture.

ACID TOLERANT LEGUMES

Some legumes will stand more soil acidity than others. Red clover, alfalfa and sweet clover must have soils well supplied with lime. Cowpeas, soybeans, hairy vetch, alsike clover, white clover and Japan clover are all more or less acid tolerant and may be used to advantage on acid soils that for one reason or another cannot be limed. Cowpeas and soybeans will stand the most acidity and good crops of these may be grown where red clover would fail. They may be used either as hay or grain crops. Alsike clover will stand some acidity and may also be used on land that is too wet for red clover, which also applies to white clover. Japan clover is being used successfully on acid soils in southern Indiana. Hairy vetch is good for acid sandy soils. It should be said, however, that all of these legumes will do best on non-acid soils and if acidity is present, the land should be limed if possible.

SUBSTITUTES FOR CLOVER

Failure to secure a stand of clover should never be allowed to cause the rotation to be broken and the land seeded back to a grain crop. In the experience of this station with its several experiment fields, clover failures have frequently occurred, due to unfavorable spring conditions, drought or winter-killing. Whenever this happens an annual legume is used to take the place of the clover. Soybeans or cowpeas may be satisfactorily used for this purpose. Ordinarily, soybeans will be preferable and the crop may be used either for hay or for grain. On southern Indiana clays or on northern Indiana sands, the cowpea may be preferable. These annual legumes will have almost as good an effect upon the soil as a crop of clover and in themselves may be just as valuable.



Fig. 6. Soybeans make an excellent substitute when clover fails. They can be used either as a hay or grain crop. Every round of the rotation should include at least one legume

GENERAL RECOMMENDATIONS

Adopt a systematic rotation of crops, including clover or some other legume, at least once every three or four years.

Wherever clover fails to do well, apply two or more tons of ground limestone to the acre.

See that the land is properly drained and practice good tillage methods.

Feed as much of the produce as possible and carefully conserve and return to the land the manure produced, as well as any unused crop residues.

Apply from 150 to 200 pounds per acre of acid phosphate or some other available phosphate to each grain crop in the rotation. In a permanent system, where manure is applied for corn, enough phosphate for the whole rotation may be most conveniently applied when seeding wheat or oats. Under certain systems of farming, where the crops are not all fed on the farm, it will pay, under normal conditions, to add some nitrogen and potash in the fertilizer.

If acid phosphate or other available phosphate cannot be secured, a mixed fertilizer as high as possible in available phosphoric acid should be used.

RECENT PURDUE PUBLICATIONS RELATING TO SOIL FERTILITY

- Experiment Station Bulletin No. 157. Unproductive Black Soils
- Experiment Station Bulletin No. 210. The Value of Phosphates on Indiana Soils
- Experiment Station Bulletin No. 213. The Value of Lime on Indiana Soils
- Experiment Station Bulletin No. 222. The Value of Manure on Indiana Soils
- Experiment Station Circular No. 66. The Lime and Fertilizer Needs of Indiana Soils
- Experiment Station Circular No. 76. Increasing Crop Yields for War Needs
- Experiment Station Circular No. 79. Indiana Soils Need Phosphates

B2

PURDUE UNIVERSITY
Agricultural Experiment Station

BULLETIN No. 227

JUNE, 1919



Fig. 1. Egg production from pens fed tankage and meat scraps, and from a pen given no meat-feed

FEEDING EXPERIMENTS WITH LEGHORNS

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The average farm poultry flock of Indiana does not produce as many eggs as it could under improved conditions. One of the important things that would increase the "lay of the hen" is better feeding, and the chief phase of this feeding would be more animal protein.

The egg contains a high per cent. of protein in the white or albumen but grains are very deficient in this element. Thus, to manufacture a large number of eggs something besides grains must be fed. Skim-milk and meat scraps have been fed at this station with good results, but the Indiana farmer has tankage for his hogs and cottonseed meal for his cattle and so wants to know their value for poultry.

In the experiment reported in this bulletin, tankage is found to be a valuable feed and cottonseed meal a worthless one for poultry.

FEEDING EXPERIMENTS WITH LEGHORNS

A. G. PHILIPS

SUMMARY

PART I

THE FEEDING VALUE OF TANKAGE AND MEAT SCRAPS IN RATIONS FOR LAYING PULLETS

Leghorn pullets, if heavy layers, consumed about 82 pounds of feed per year.

Pullets that were poor layers used within 18 pounds as much feed as the good layers. This amount of feed, if of the proper kind, may increase egg production over 100 eggs per bird.

When given an opportunity, pullets ate eight to ten times as much oyster shell as grit.

Results indicated that the presence of animal protein in a ration increased the efficiency of the other feeds given.

Although the egg production varied from year to year, the general tendency was for meat scraps and tankage to be equally efficient.

The pullets in the pen fed tankage laid an average of 183.5 eggs; in the meat scraps pen, 179 eggs; and in the no meat-feed pen, 59.35 eggs per year.

Under war time conditions, it cost slightly over \$2.00 to feed a laying Leghorn pullet for 12 months.

It cost an average of \$0.128 for feed to produce one dozen eggs in the tankage pen, \$0.136 in the meat scraps pen and \$0.33 in the no meat-feed pen.

It cost less to feed a pullet when no tankage or meat scraps were fed, but it cost more to produce one dozen eggs.

The amount of feed required to produce one pound of eggs was 3.6 pounds in the tankage pen, 3.77 pounds in the meat scraps pen and 9.32 pounds in the no meat-feed pen.

Sudden severe lowering of temperature in the winter retarded egg production of Leghorns.

The highest egg producing months, regardless of the ration fed, were March, April and May.

The income was the highest during the spring months when the prices for eggs were the lowest.

The profit over feed costs was \$4.17 in the tankage pen, \$4.60 in the meat scraps pen and \$0.43 in the no meat-feed pen.

The feeding value of tankage was \$1371.00 per ton and of the meat scraps was \$1051.00 per ton.

The three pens involved in the experiment produced eggs of similar fertility but the tankage-fed pen was consistently lower in "hatchability" of eggs than the other pens. The eggs of the meat scraps pen hatched slightly better than those of the no meat-feed pen.

A Leghorn pullet produces about 25 pounds of manure on the roosts each year.

There was nothing to indicate that the rations given had any influence on the mortality of the flocks.

PART II

THE FEEDING VALUE OF COTTONSEED MEAL VS. BUTTERMILK IN PURDUE STANDARD RATION VS. BUTTERMILK IN DOUBLE GRAIN RATION

Leghorn pullets in this experiment consumed about 65 pounds of dry feed and 90 pounds of milk.

Pullets fed cottonseed meal as the chief protein concentrate, derived practically no food benefit from it. They laid no better than birds fed no protein concentrate of any kind in other experiments.

Poor layers consumed less than heavy layers.

Too much grain in a ration cuts down the egg production.

Pullets in the cottonseed meal pen laid 55.69 eggs; in the double grain pen, 137.85 eggs; and in the standard grain pen, 166.87 eggs per year.

The double grain ration cost less to feed, because of the large amount of the grains fed in proportion to the mash.

Under pre-war conditions, it cost slightly over \$1.00 to feed a Leghorn pullet for 12 months.

To produce one dozen eggs it cost an average of \$.10 for feed in the double grain pen, \$.09 in the standard grain pen and \$.20 in the cottonseed meal pen.

In the standard grain pen the Leghorn pullets produced one pound of eggs from 3.28 pounds of feed.

Sudden lowering of temperature of several degrees seriously retarded egg production.

The average profit over feed was \$.32 in the cottonseed meal pen, \$.179 in the double grain pen and \$.245 in the standard grain pen.

Cottonseed meal did not influence the fertility but it did lower the "hatchability" of eggs somewhat.

Increasing the grain did not influence the fertility or "hatchability" of eggs.

PART III

THE VALUE OF CONFINEMENT VS. SMALL YARD VS. FREE RANGE FOR LEGHORN HENS AND PULLETS

The larger the free range, the greater is the consumption of land-given feed. These differences were not as marked with the pullets as with the hens, and with both they were slight.

The total consumption of feed was similar to that shown in Part II.

The pullets laid about 60 more eggs each than the hens.

The number of eggs laid by hens and pullets on free range averaged 128.75 eggs; in the small yard 124.4 eggs; and in confinement 112.3 eggs for one year.

It was surprising to find the slight differences in egg production as influenced by the amount of range permitted.

The pullets in confinement were rather consistant in producing fewer eggs than the other birds, and the birds in the small yards laid fewer eggs than the ones on free range, during eight of the 12 months.

Hens, on the average, do not lay eggs in the winter. Poultrymen must depend on pullets for winter eggs.

Data on the influence of the amount of range on fertility and "hatchability" were very conflicting.

There was a greater mortality among the confined birds than among the other birds.

PART I

THE FEEDING VALUE OF TANKAGE AND MEAT SCRAPS IN RATIONS FOR LAYING PULLETS

Experiments in the feeding of poultry were inaugurated at Purdue University in 1910 and the work with Leghorns for the first four years was published in Bulletin No. 182, November, 1915, and the work with Plymouth Rocks for the following three years was published in Bulletin No. 218, August, 1918. Practically all of the feeding work has been with the study of protein feeds, using two breeds to check results.

The object of this experiment was to determine the feeding value of commercial "digester" tankage as compared with commercial meat scraps in rations for laying pullets. Tankage has become very popular on the general farm but its value in feeding chickens is not generally known.

TIME

The different experiments were conducted between the following dates:

Experiment No. 1—November 3, 1916 to November 2, 1917

Experiment No. 2—November 3, 1917 to November 3, 1918

Experiment No. 2 is a repetition of Experiment No. 1

HOUSING AND YARDING

The pens were each 10 feet by 12 feet, built in pairs, with concrete floors, muslin and glass fronts, Purdue trap nests and were modern in every way.

Each pen had a yard 130 feet by 150 feet in area, planted to young fruit trees. An eight-foot strip of sod was maintained around each lot; four rows of corn were grown between the trees in the summer and a rye cover crop planted over the entire area in the fall. This made what was thought to be as nearly ideal farm conditions for poultry as it was possible to secure on a new experimental farm. The lots were naturally devoid of trees and the soil was made up of Sioux sandy loam. It was first class for poultry but poor land on which to raise crops. The houses faced the south and the land gently sloped to the north.

STOCK

The birds consisted of Single Comb White Leghorn pullets, hatched from stock on the Purdue farm. There were 30 pullets in each flock, which were early hatched and similar in size, vigor and development. Each flock had pedigreed full sisters in every other flock. In other words, 30 sets of "triplets" were taken from the pedigreed pullets and one set placed in each pen. This plan permitted the breeding in every pen to be exactly like the others and reduced to a minimum any differences in egg laying due to differences in stock. Two cock birds were placed in each pen during the hatching season and changed from pen to pen every few days.

RATIONS

The rations used were the same as those used in previous experiments, except as to animal protein, and are considered to be practical on the farms of Indiana. The rations were as follows:

| TANKAGE PEN | MEAT SCRAPS PEN | NO ANIMAL-FEED PEN |
|------------------|------------------------|--------------------|
| <i>Grain</i> | <i>Grain</i> | <i>Grain</i> |
| 10 pounds corn | 10 pounds corn | 10 pounds corn |
| 10 pounds wheat | 10 pounds wheat | 10 pounds wheat |
| 5 pounds oats | 5 pounds oats | 5 pounds oats |
| <i>Mash</i> | <i>Mash</i> | <i>Mash</i> |
| 5 pounds bran | 5 pounds bran | 5 pounds bran |
| 5 pounds shorts | 5 pounds shorts | 5 pounds shorts |
| 3 pounds tankage | 3.5 pounds meat scraps | |

In making up the rations, the plan was to use the meat scraps ration as a basis and supply as much protein through the tankage as there was in the meat scraps. The meat scraps and tankage were purchased from commercial packing houses in large enough quantities to last for two years. It was estimated that three pounds of the brand of tankage used were equal in protein to three and one-half pounds of the meat scraps used. Whenever possible, the grains were purchased in large quantities from nearby farms and the other feeds were obtained from local elevators. This kept the feed price to a minimum.

The grain ration was changed to suit certain feed conditions, particularly with the corn and wheat, but since all pens were treated alike, any change was not thought to influence any results. In the fall, one pound of oil meal was added to the mash, and grit, oyster shell, ground bone and water were always available. During the winter, when the birds were confined, mangel wurzels were used as green feed. The bran and shorts were fed together as a dry mash and the grains were mixed and fed together. The tankage and meat scraps were mixed with the mash.

PRICES OF FEEDS

The prices of feeds as charged were the same as those paid for the feeds. They varied from month to month, although the feeds bought in quantity remained the same for several months. The following statement shows minimum and maximum prices paid for feeds during the two experiments.

Minimum and Maximum Prices of Feeds per One Hundred Pounds

| Feed | Experiment No. 1 | Experiment No. 2 |
|--------------------|------------------|------------------|
| Corn ----- | \$1.71-\$3.75 | \$2.16-\$3.48 |
| Wheat ----- | 2.10- 3.55 | 3.55 |
| Oats ----- | 1.37- 1.50 | 1.50- 2.03 |
| Bran ----- | 1.50- 2.35 | 1.85- 2.10 |
| Shorts ----- | 1.70- 2.85 | 2.30 |
| Tankage ----- | 2.20 | 2.20 |
| Meat scraps ----- | 2.60 | 3.75 |
| Oil meal ----- | 2.85 | 3.20 |
| Ground bone ----- | 2.25- 2.35 | None fed |
| Grit ----- | 0.59- 0.66 | 0.66- 0.98 |
| Oyster shell ----- | 0.59- 0.66 | 0.66- 0.89 |

METHODS OF FEEDING AND CARE

The mixed grains were placed in a bucket in each pen and the dry mash put into a hopper. The feeding was so managed that the grain and dry mash were both consumed in the same length of time, thus insuring an even balancing of the ration. No particular trouble was experienced in keeping the balance, although care had to be given to insure it. The grain fed in the early morning was scattered in a deep straw litter, and in the evening the birds were given all the feed they would clean up. This meant feeding about one-third of the grain in the morning and two-thirds in the evening, thus increasing the appetite for the mash throughout the day. The dry mash and skim-milk were always accessible and green feed was given when the birds could not obtain it

TABLE I.—Average Consumption of All Feeds, per Bird, in Pounds

| Feed | Tankage | | | Meat scraps | | | No meat-feed | | |
|----------------------|------------------|------------------|---------|------------------|------------------|---------|------------------|------------------|---------|
| | Experiment No. 1 | Experiment No. 2 | Average | Experiment No. 1 | Experiment No. 2 | Average | Experiment No. 1 | Experiment No. 2 | Average |
| Corn ----- | 27.79 | 20.332 | 24.06 | 29.12 | 19.949 | 24.54 | 25.42 | 17.211 | 21.31 |
| Wheat ----- | 11.89 | 20.332 | 16.11 | 12.43 | 19.949 | 16.19 | 10.78 | 17.211 | 14.00 |
| Oats ----- | 9.92 | 10.665 | 10.29 | 10.39 | 8.773 | 9.58 | 9.05 | 8.606 | 8.83 |
| Total grain ----- | 49.60 | 51.329 | 50.46 | 51.94 | 48.671 | 50.30 | 45.25 | 43.028 | 44.14 |
| Bran ----- | 9.93 | 10.665 | 10.30 | 10.39 | 10.046 | 10.218 | 9.04 | 8.606 | 8.82 |
| Shorts ----- | 9.93 | 10.665 | 10.30 | 10.39 | 10.046 | 10.218 | 9.04 | 8.606 | 8.82 |
| Oil meal ----- | 0.36 | 0.152 | 0.256 | 0.37 | 0.152 | 0.256 | 0.31 | 0.150 | 0.23 |
| Total mash ----- | 20.22 | 21.48 | 20.85 | 21.15 | 20.24 | 20.69 | 18.39 | 17.36 | 17.87 |
| Total grain and mash | 69.82 | 72.81 | 71.32 | 72.09 | 68.91 | 70.50 | 63.64 | 60.39 | 62.02 |
| Tankage ----- | 5.96 | 61.06 | 6.033 | | | | | | |
| Meat scraps ----- | | | | 7.27 | 7.032 | 7.10 | | | |
| Ground bone ----- | 0.54 | | 0.27 | 0.45 | | 0.23 | 0.41 | | 0.20 |
| Grit ----- | 0.54 | 0.342 | 0.44 | 0.45 | 0.304 | 0.377 | 0.41 | 0.345 | 0.38 |
| Oyster shell ----- | 3.16 | 3.526 | 3.343 | 3.41 | 3.24 | 3.32 | 1.60 | 1.630 | 1.62 |
| Total dry feed ----- | 80.02 | 82.785 | 81.40 | 84.67 | 79.491 | 82.08 | 66.06 | 62.365 | 64.21 |

in the yards. Free range over the large lots was allowed except for a few cold weeks in winter and the birds were always contented. The curtains over the open fronts were closed at night in cold weather and used as outside awnings in the summer. The same man took care of all pens and every care was given to prevent lice, mites, etc., and to insure sanitation.

In Table I is shown the average consumption per bird per year of each feed given. In order to compare one pen with another easily and fairly, certain groups of feeds are totaled separately with the total dry feed. The meat scraps and tankage are not considered here as part of the mash because they were fed in different amounts; hence would make the totals unfair. Considering either the grain, or mash and grain together, there is a negligible difference between one year and the next with the same pens or between the averages of the tankage and meat scraps pens. The no meat-feed pens ate slightly less than the other two pens, each year. Fowls eat a much larger amount of oyster shell than grit when given free access to both, but the no meat-feed pens consumed about half as much oyster shell as either of the others. Roughly estimating, it required about 82

pounds of feed for a Leghorn per year, which would mean slightly less than one-fourth pound per day of grain, mash and mineral feeds.

It will be noted later in this publication that the egg production of the no meat-feed pen was low but that the feed consumption was high. On the basis of 82 pounds for a good layer and 64 pounds for a poor layer, it was the difference of 18 pounds that caused the high egg production. It is not always the problem of how much a hen eats but what she eats that may control egg production. A very large proportion of the feed is needed and utilized for maintenance of the body functions and often it requires but little more to supply the hen with what she needs for heavy egg production. The poor-laying hen ate much less oyster

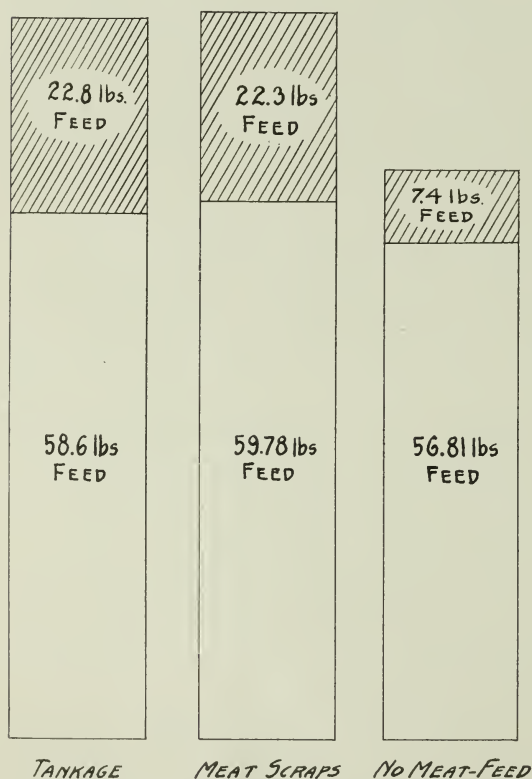


Fig. 2. The relative proportion of feed consumed that was used in the manufacture of eggs, to that which was wasted

shell because she did not need it. The 18 pounds difference in consumption between the animal feed and no meat-feed pens was made up largely of meat scraps or tankage and to these feeds may be given much credit for production.

TABLE II.—Average Number of Eggs per Pullet, per Pen, per Year

| Experiment No. | Tankage | * Meat scraps | No meat-feed |
|----------------|---------|---------------|--------------|
| 1 | 184.89 | 191.22 | 74.5 |
| 2 | 182.16 | 166.79 | 44.56 |
| Average | 183.53 | 179.09 | 59.53 |

In Table II is shown the egg production which is the most important part of the experiment. In Experiment No. 1, the meat scraps pen laid seven more eggs than the tankage pen and 117 more eggs than the no meat-feed pen. In Experiment No. 2, the meat scraps pen laid 16 eggs less than the tankage pen and 122 eggs more than the no meat-feed pen. Egg production in all the pens was very high in Experiment No. 1 and in Experiment No. 2 the tankage pen production was higher than would generally be expected. No reason is known for the variations one year with the next in the meat scraps and no meat-feed pens. Such variations are not what would be desired, but the tankage and meat scraps pens averaged so closely together that these feeds might be considered of similar feeding values. The birds in these pens laid so much better than their sisters in the other pens that the feeding values of tankage and meat scraps are very high.

It must be remembered that each pen had full sisters in the other pens and it was interesting to note, that as a rule, a good layer in one pen had a sister laying well in the other pens.

It will be noted in Bulletin No. 182, that the meat scraps pens in 1911 and 1912 did not lay as well as in 1917 and 1918. This increase is the result of pedigree breeding, permitting the use of known sisters from high producing ancestry in the feeding experiments.

Noting the figures in Table II, it is very evident that the six pounds of tankage or the seven pounds of meat scraps fed to each bird, as shown in Table I, were of extreme value in producing eggs. The 18 pounds difference in feed consumed increased the egg production 124 eggs in the tankage pen and 120 eggs in the meat scraps pen. It pays to feed animal by-products in a ration for laying fowls.

TABLE III.—Cost of Feed per Bird, per Year, and Feed Cost of Producing One Dozen Eggs

| Experiment No. | Tankage | | Meat scraps | | No meat-feed | |
|----------------|-----------|---------------------|-------------|---------------------|--------------|---------------------|
| | Cost feed | Cost one dozen eggs | Cost feed | Cost one dozen eggs | Cost feed | Cost one dozen eggs |
| 1 | \$1.68 | \$0.112 | \$1.80 | \$0.116 | \$1.37 | \$0.229 |
| 2 | 2.029 | 0.114 | 2.11 | 0.156 | 1.554 | 0.432 |
| Average | \$1.85 | \$0.128 | \$1.96 | \$0.136 | \$1.46 | \$0.33 |

The figures in Table III show the costs involved in the two experiments. The costs during the second year were greater than those during the first year due to increasing feed prices but the differences between the tankage and the meat scraps pens were small. The feed cost of the

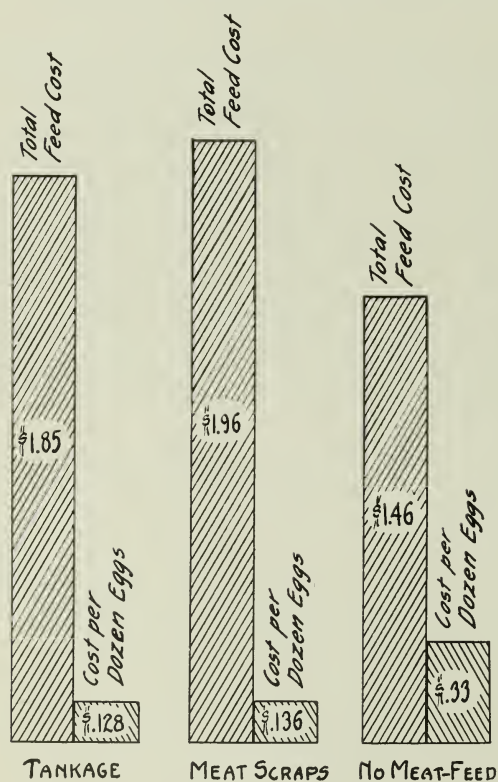


Fig. 3. The cost of feeding a hen for one year and the feed cost of one dozen eggs

no meat-feed pen was always less because less feed was consumed. The feed cost for the tankage pen was always slightly less than for the meat scraps pen because the tankage was cheaper. However, a cheap feed bill where no meat scraps or tankage was fed did not cause a low cost per dozen eggs. In Experiment No. 2, 1918, the poorly fed pen produced eggs at \$0.432 per dozen, a price higher than the Indiana farmer averaged for his eggs on the market. If, as many people think, the feed bill is one-half to two-thirds of the total expense of producing eggs, then those who do not feed tankage and meat scraps are probably keeping hens at a loss. A feed cost of 13 or 14 cents per dozen permits of some profit and shows that it is advisable to spend money for feed. The high

cost of feed is not as much a problem today as is the question of low egg production. If egg production is high the feed cost will not be excessive, even if the cost seems almost prohibitive at times. To make money, some money usually has to be spent and tankage and meat scraps are profitable feeds at prices demanded today and at the prevailing prices of eggs.

One manufacturer of tankage stated that he was afraid to recommend his feed for chickens for many reasons, but from the standpoint of egg production and cost of same there seems to be no indication that it is not as good as meat scraps.

TABLE IV.—Average Number Pounds of Feed¹ to Produce One Pound of Eggs

| Experiment No. | Tankage | Meat scraps | No meat-feed |
|----------------|---------|-------------|--------------|
| 1 | 3.46 | 3.54 | 7.07 |
| 2 | 3.74 | 4.00 | 11.57 |
| Average | 3.60 | 3.77 | 9.32 |

¹ Grit, shell and bone not included

In Table IV is shown the efficiency of the three rations given. Broadly speaking, the tankage and meat scraps pens did equally well in transforming raw material into a finished product. The lack of animal by-products in a ration decreased the efficiency of the grains, bran and shorts and made egg production very expensive. It appears that the presence of tankage or meat scraps in a ration increases the digestive efficiency of the other feeds. One pound of eggs from three and three-fourths pounds of feed shows efficient feeding and where such results can be obtained, the question of feed cost need not be an item of consequence. It is not economical to leave animal-feeds out of a hen's ration.

In Table V is given the average monthly egg production of each hen and the average for the two years.

It is by monthly averages that the poultryman measures his egg production and determines whether or not his flock is laying sufficiently well. It will be noted that regardless of rations, March, April and May were the highest egg producing months. In fact, some people believe that any hen will lay in the spring but only

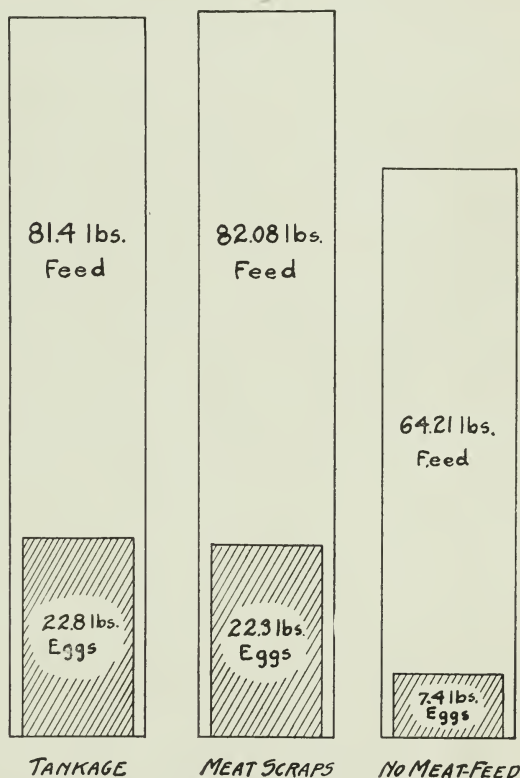


Fig. 4. The number of pounds of eggs produced from feed consumed

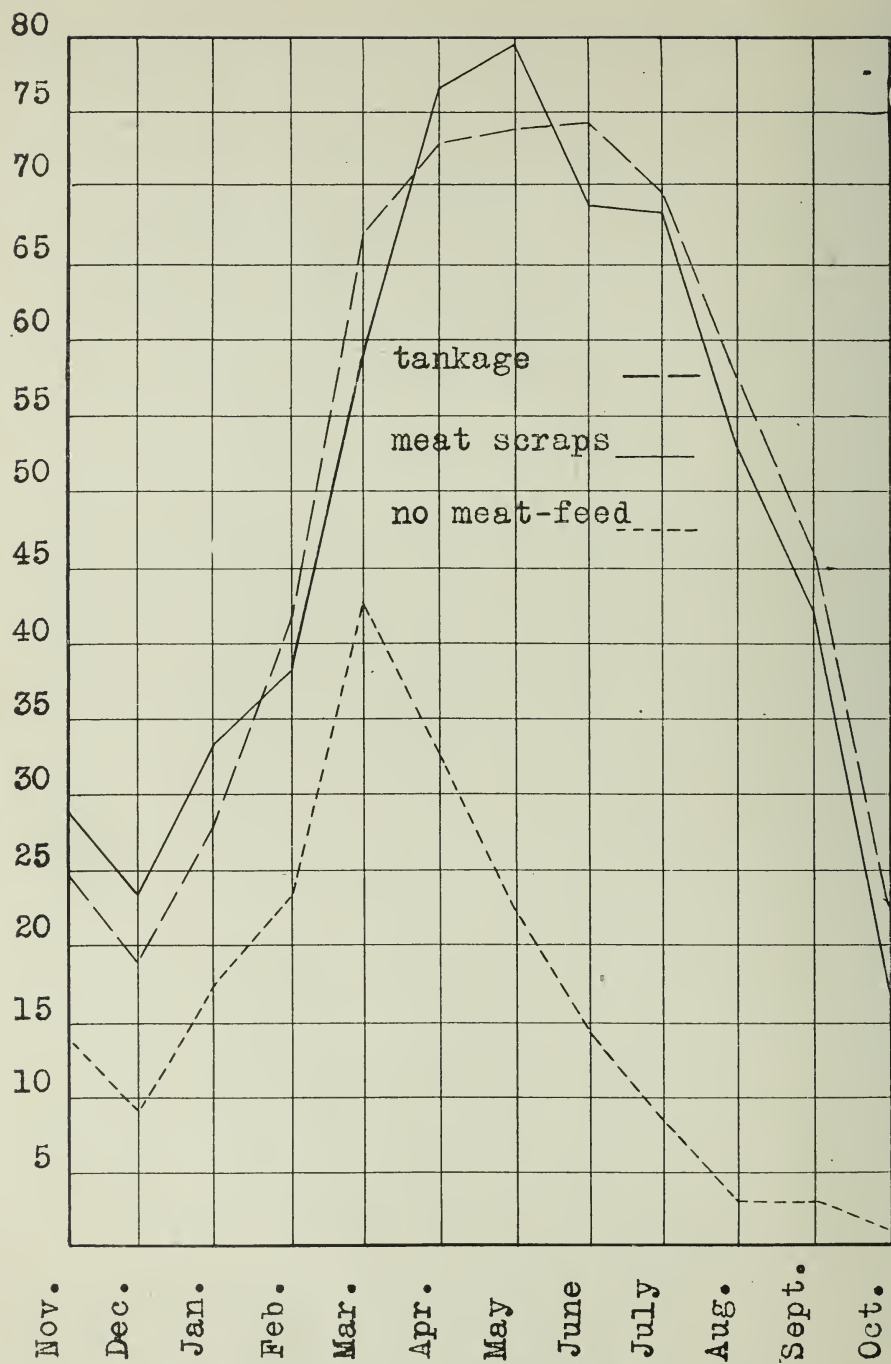


Fig. 5. Average monthly per cent. egg production from pens fed tankage, meat scraps and no meat-feed

TABLE V.—Average Per Cent. Egg Production per Month, per Pullet—
Two Years

| Month | Tankage | | | Meat scraps | | | No meat-fed | | |
|---------------------|--------------------------|--------------------------|--------------|--------------------------|--------------------------|--------------|--------------------------|--------------------------|--------------|
| | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age |
| November—28 days-- | 13.5 | 35.9 | 24.7 | 18.0 | 39.9 | 29.0 | 14.0 | 15.4 | 14.7 |
| December ----- | 27.0 | 10.9 | 19.0 | 31.0 | 15.9 | 23.5 | 18.8 | 0.9 | 9.9 |
| January ----- | 41.7 | 13.9 | 27.8 | 48.6 | 18.4 | 33.5 | 24.5 | 10.3 | 17.4 |
| February ----- | 40.0 | 43.5 | 41.8 | 45.0 | 31.7 | 38.4 | 27.5 | 18.8 | 23.2 |
| March ----- | 56.5 | 68.5 | 67.0 | 46.9 | 70.8 | 58.9 | 51.0 | 35.0 | 43.0 |
| April ----- | 69.0 | 77.6 | 73.3 | 72.0 | 80.2 | 76.1 | 38.5 | 25.9 | 32.2 |
| May ----- | 73.0 | 75.0 | 74.0 | 81.0 | 77.8 | 79.4 | 26.0 | 17.8 | 21.9 |
| June ----- | 77.0 | 70.9 | 74.0 | 66.9 | 70.8 | 68.9 | 22.9 | 6.1 | 14.5 |
| July ----- | 73.9 | 65.9 | 69.9 | 70.0 | 66.6 | 68.3 | 10.0 | 7.3 | 8.7 |
| August ----- | 56.8 | 58.2 | 57.5 | 60.0 | 46.6 | 53.3 | 2.9 | 4.3 | 3.6 |
| September ----- | 49.0 | 42.2 | 45.7 | 53.0 | 31.2 | 42.1 | 4.5 | 2.5 | 3.5 |
| October ----- | 24.0 | 20.7 | 22.4 | 24.0 | 10.5 | 17.3 | 0.8 | 0.9 | 0.9 |
| November—2 days --- | 1.5 | 11.1 | 6.3 | 4.6 | 12.1 | 8.4 | 0.0 | 2.7 | 1.4 |

the good hen will lay in the fall and winter. With each ration the month of November in Experiment No. 2 was better than in Experiment No. 1, due probably to a little more mature stock. The December and January productions are lower in Experiment No. 2 than in Experiment No. 1 because of the very severe winter weather. These two months had 25 days with the temperature below zero; a minimum temperature of 20 degrees below and a maximum temperature of 29 degrees below zero. The drop of 41 degrees in one night damaged the hens considerably and for a time practically eliminated egg production. Since the birds were badly frozen, it may account for the meat scraps pen not doing as well in Experiment No. 2 as in Experiment No. 1. The October production was good, indicating heavy production and assisting in making possible a high yearly record. Even with the high yearly average records that these birds made, it is well to note that the spring production is two to three times as great as the fall and winter production.

TABLE VI.—Average Price per Dozen in Amounts, per Month, of Eggs
Sold from the Purdue Farm

| Month | Experiment No. 1 | Experiment No. 2 |
|-----------------|------------------|------------------|
| November ----- | \$0.45 | \$0.60 |
| December ----- | 0.54 | 0.63 |
| January ----- | 0.48 | 0.665 |
| February ----- | 0.43 | 0.57 |
| March ----- | 0.29 | 0.34 |
| April ----- | 0.32 | 0.32 |
| May ----- | 0.34 | 0.36 |
| June ----- | 0.30 | 0.44 |
| July ----- | 0.33 | 0.46 |
| August ----- | 0.44 | 0.50 |
| September ----- | 0.52 | 0.54 |
| October ----- | 0.60 | 0.66 |

The figures in Table VI show the average monthly net prices received for eggs by the Purdue Poultry Farm. These prices are used in computing the values of the eggs produced in the experiments. For several years Purdue has been shipping to eastern markets in the fall and winter but selling to Indiana during the spring and summer. During Experiment No. 2 all the eggs were shipped to New York and it was found that it was both possible and profitable. In making these price figures the total price received for any shipment of eggs, both brown and white, was taken and five cents per dozen deducted for the case and shipping costs. If the white eggs had been considered separately the price would have figured higher, as the New York market prefers the white egg.

In Experiment No. 2 the price received was higher than in Experiment No. 1 for every month except April, when there was a leveling of prices all over the country. December is usually the month with the highest price, but in Experiment No. 2, January was the highest.

If the egg production of December and January is each multiplied by the prices of eggs and compared with the same thing in April, it will constantly be noted that the profitable season of egg production is in the spring, even with market prices at low ebb. It must be taken for granted that the fall and winter production herein shown is not lower than that generally found in commercial poultry work. By averaging the two years of the tankage and meat scraps pens and multiplying the prices received in both Experiment No. 1 and Experiment No. 2, the calculated income per hundred hens per day would be about as follows:

Income per One Hundred Hens per Day

| Month | Experiment No. 1 | Experiment No. 2 |
|----------------|------------------|------------------|
| November ----- | \$1.003 | \$1.338 |
| December ----- | 0.95 | 1.108 |
| January ----- | 1.224 | 1.695 |
| February ----- | 1.431 | 1.898 |
| March ----- | 1.519 | 1.781 |
| April ----- | 1.99 | 1.99 |
| May ----- | 2.17 | 2.30 |
| June ----- | 1.78 | 2.618 |

Although prices per dozen of eggs are high in the winter months, the heavy income is in the spring. This should not mean that winter eggs are not to be desired, for every dollar of income at that time helps to make the other months profitable.

TABLE VII.—Average Income and Profit Over Feed, per Pullet, per Year

| Experiment No. | Tankage | | Meat scraps | | No meat-feed | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | Average income | Average profit | Average income | Average profit | Average income | Average profit |
| 1 | \$5.77 | \$4.09 | \$6.08 | \$4.28 | \$2.25 | \$0.88 |
| 2 | 6.29 | 4.26 | 5.84 | 3.73 | 1.535 | 0.02 |
| Average | \$6.03 | \$4.17 | \$5.96 | \$4.00 | \$1.89 | \$0.43 |

The figures in Table VII show the average income and profit over feed per bird for each year. Income is directly correlated with the number of eggs produced and the profit is likewise. The feed bills were higher in the tankage and the meat scraps pens, due largely to the animal-feed given but the investment was profitable. In Experiment No. 2 the no meat-feed pen did not pay its feed bill.

The term profit is misused and in this case is not meant to be net profit, but the difference between the income and feed cost. Authorities differ as to what per cent. of the total expense is made up of feed cost, but a fair estimate is that it constitutes 50 per cent. of the gross cost. On this basis the tankage pen would have averaged \$2.33 net profit and the meat scraps pen \$2.04 per pullet. Under commercial conditions this may be considered too great a profit to expect, but the fact remains that it is profitable to feed tankage or meat scraps in a laying ration.

TABLE VIII.—Summary of Averages

| | Tankage | Meat scraps | No meat-feed |
|---|---------|-------------|--------------|
| Total number of pounds feed consumed per bird ----- | 81.4 | 82.08 | 64.21 |
| Cost of feeding per bird ----- | \$1.88 | \$1.96 | \$1.46 |
| Cost of producing one dozen eggs ----- | 0.13 | 0.13 | 0.33 |
| Pounds feed to produce one pound of eggs----- | 3.6 | 3.77 | 9.32 |
| Eggs per pullet ----- | 183.5 | 179.1 | 59.5 |
| Income per bird ----- | \$6.03 | \$5.96 | \$1.89 |
| Profit over feed ----- | 4.17 | 4.00 | 0.43 |

Table VIII collects the figures given in the preceding tables into one group for easy comparison and makes the contrast between pens more marked. When given animal by-products the birds consume more feed at a greater cost but they lay more eggs, bring a greater income and a greater profit.

TABLE IX.—Feeding Value of Protein Feeds per Hundred Pounds

| Experiment No. | Tankage | Meat scraps |
|----------------|---------|-------------|
| 1 | \$54.70 | \$47.90 |
| 2 | 72.40 | 57.25 |
| Average | \$63.55 | \$52.57 |

In Table IX is given the real cash unit feeding value of tankage and meat scraps. Every 100 pounds of tankage fed produced \$63.55 worth of eggs. Every 100 pounds meat scraps fed produced \$52.57 worth of eggs. This means that in these experiments tankage had a feeding value of \$1371.00 per ton and meat scraps a feeding value of \$1051.40 per ton. These figures seem extremely high but the fact remains just the same. With animal by-products at a seemingly high price, the feeding values are still great enough to warrant feeding them.

The figures in Table X answer one of the questions concerning tankage. The fertility of eggs ran slightly lower each year and the "hatchability" considerably lower each year where tankage was fed. Meat scraps did not injure the hatching power of eggs, which seemed to be

TABLE X.—Per Cent. Fertility and Hatching Power of Eggs

| Experiment No. | Fertility of eggs | | |
|----------------|-------------------|-------------|--------------|
| | Tankage | Meat scraps | No meat-feed |
| 1 | 97.2 | 99.0 | 99.0 |
| 2 | 94.6 | 97.7 | 94.3 |
| Average | 95.9 | 98.3 | 96.6 |

| Experiment No. | Hatching power of eggs | | |
|----------------|------------------------|-------------|--------------|
| | Tankage | Meat scraps | No meat-feed |
| 1 | 51.8 | 74.2 | 77.6 |
| 2 | 47.8 | 65.5 | 50.9 |
| Average | 52.8 | 69.8 | 64.2 |

slightly better than when they were lacking in the ration. Too much emphasis must not be placed on these figures, except to rather question the value of tankage during the hatching season. Why this should be is not known.

TABLE XI.—Average Number Pounds of Manure Produced at Night

| Experiment No. | Tankage | Meat scraps | No meat-feed |
|----------------|---------|-------------|--------------|
| 1 | 22.38 | 24.77 | 25.02 |
| 2 | 26.08 | 25.7 | 26.7 |
| Average | 24.23 | 24.74 | 25.86 |

In Table XI is shown the total nightly manure production per bird. Each week the droppings were collected and weighed and though some evaporation took place while on the dropping boards, the amount is probably as much as would ever reach the field or garden of the farmer. These figures substantiate those secured with Leghorns in years previous and if the night droppings constitute two-fifths of all manure produced, 100 birds would produce practically three and one-half tons of very nitrogenous fertilizer each year. Valued at \$5.00 per ton, this would be quite an item to the birds' credit.

TABLE XII.—Mortality of Birds in Pens

| Experiment No. | Tankage | Meat scraps | No meat-feed |
|----------------|---------|-------------|--------------|
| 1 | 4.0 | 4.0 | 6.0 |
| 2 | 10.0 | 7.0 | 6.0 |
| Average | 7.0 | 5.5 | 6.0 |

Table XII gives the mortality of each pen. The data indicate little and since the two years are so much at variance with each other it is doubtful if it amounts to anything. The mortality in Experiment No. 2 seems abnormally high but the records do not indicate that the ration had anything to do with it. In Experiment No. 1 three deaths were due to roup, two were from reproductive troubles, two were caused by worms, one death was from heat, one from leg injury, one from tumors, one from pneumonia, etc. In Experiment No. 2 eight died from reproductive troubles, six from unknown causes, three from roup, four crippled and one by heat while on nest.

PART II

THE FEEDING VALUE OF COTTONSEED MEAL VS. BUTTERMILK IN PURDUE STANDARD RATION VS. BUTTERMILK IN A DOUBLE GRAIN RATION FOR PULLETS

The results of four years' work in feeding skim-milk, meat scraps and fish scraps were published in Bulletin No. 182. At the end of that time it was deemed advisable to determine the value of cottonseed meal for chickens as it was so easily available and so generally used on Indiana stock farms. It was the belief of many that Leghorns would do well on a ration containing more grain than recommended by the Poultry Department, for they are active birds and should utilize efficiently an extra amount of heat-and-energy-forming material. All evidence available indicated that buttermilk was equally as valuable as skim-milk, which in turn had proved at Purdue to be as efficient as meat scraps or fish scraps.

TIME

Experiment No. 1—November 3, 1914 to November 2, 1915

Experiment No. 2—November 3, 1915 to November 2, 1916

MANAGEMENT

The housing, yarding, trap nesting and record keeping methods were the same with these experiments as for the tankage experiment, described in Part I of this bulletin. While the pullets were not pedigreed they were of Purdue stock, divided evenly into groups of 30 birds each and handled and cared for as in the tankage experiment.

RATIONS AND FEEDS

The rations used were the standard Purdue rations:

| COTTONSEED MEAL PEN | DOUBLE RATION PEN | STANDARD GRAIN RATION PEN |
|----------------------------|----------------------|------------------------------|
| <i>Grain</i> | <i>Grain</i> | <i>Grain</i> |
| 10 pounds corn | 20 pounds corn | 10 pounds corn |
| 10 pounds wheat | 20 pounds wheat | 10 pounds wheat |
| 5 pounds oats | 10 pounds oats | 5 pounds oats |
| <i>Mash</i> | <i>Mash</i> | <i>Mash</i> |
| 5 pounds bran | 5 pounds bran | 5 pounds bran |
| 5 pounds shorts | 5 pounds shorts | 5 pounds shorts |
| 5.3 pounds cottonseed meal | 50 pounds buttermilk | 50 pounds buttermilk |

In making up the rations, the plan was to use the standard grain ration as a basis and to supply as much protein in the cottonseed meal as in the buttermilk. The cottonseed meal was purchased from a commercial concern and a sufficient supply obtained to last for two years. The buttermilk was purchased from the Purdue Creamery and was fairly uniform in composition. The same method of buying feeds, shifting proportions of grains and supplying grit, shell, etc., was used as in other experiments. The buttermilk was fed in open pans and not mixed with the bran and shorts.

PRICES OF FEEDS

The prices of feeds herein charged were the same as paid for these feeds and are given in the following statement:

Minimum and Maximum Prices of Feeds per One Hundred Pounds

| Feed | Experiment No. 1 | Experiment No. 2 |
|-----------------------|------------------|------------------|
| Corn ----- | \$1.25-\$1.44 | \$1.25-\$1.71 |
| Wheat ----- | 1.25- 2.16 | 1.60- 2.10 |
| Oats ----- | 0.94- 1.66 | 0.94 |
| Bran ----- | 1.50 | 1.25- 1.50 |
| Shorts ----- | 1.60- 1.70 | 1.60 |
| Oil meal ----- | 1.80 | 1.95 |
| Cottonseed meal ----- | 1.60 | 1.60 |
| Buttermilk ----- | 0.24 | 0.24- 0.30 |
| Ground bone ----- | 2.25- 3.50 | 2.25 |
| Grit ----- | 0.53 | 0.53- 0.59 |
| Shell ----- | 0.53 | 0.53- 0.59 |

TABLE I.—Average Consumption of All Feeds, per Bird, in Pounds

| Feed | Cottonseed meal | | | Double grain | | | Standard grain | | |
|----------------------------|--------------------------|--------------------------|--------------|--------------------------|--------------------------|--------------|--------------------------|--------------------------|--------------|
| | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age |
| Corn ----- | 16.27 | 21.18 | 18.73 | 27.12 | 29.28 | 28.20 | 22.26 | 25.24 | 23.75 |
| Wheat ----- | 9.49 | 10.23 | 9.86 | 14.63 | 14.34 | 14.48 | 12.24 | 12.30 | 12.27 |
| Oats ----- | 6.44 | 7.85 | 7.05 | 10.32 | 10.90 | 10.61 | 8.63 | 9.39 | 9.01 |
| Total grain ----- | 32.20 | 39.26 | 35.73 | 52.07 | 54.52 | 53.30 | 43.13 | 46.93 | 45.03 |
| Bran ----- | 6.44 | 7.83 | 7.05 | 5.24 | 5.45 | 5.34 | 8.49 | 9.32 | 8.90 |
| Shorts ----- | 6.44 | 7.83 | 7.05 | 5.24 | 5.45 | 5.34 | 8.49 | 9.32 | 8.90 |
| Oil meal ----- | 0.17 | 0.31 | 0.24 | 0.14 | 0.20 | 0.17 | 0.18 | 0.35 | 0.26 |
| Total mash ----- | 13.05 | 15.97 | 14.51 | 10.62 | 11.10 | 10.86 | 17.16 | 18.99 | 18.07 |
| Total grain and mash ----- | 45.25 | 55.23 | 50.24 | 62.69 | 65.62 | 64.15 | 60.29 | 65.92 | 63.10 |
| Cottonseed meal ---- | 6.83 | 8.30 | 7.56 | | | | | | |
| Buttermilk ----- | | | | 52.40 | 54.40 | 53.40 | 85.40 | 93.90 | 89.60 |
| Ground bone ----- | 0.29 | 0.72 | 0.50 | 0.41 | 0.42 | 0.41 | 0.38 | 0.67 | 0.52 |
| Grit ----- | 0.63 | 0.72 | 0.67 | 0.57 | 0.42 | 0.50 | 0.79 | 0.67 | 0.73 |
| Oyster shell ----- | 1.34 | 1.84 | 1.59 | 2.55 | 2.83 | 2.69 | 3.15 | 3.60 | 3.37 |
| Total feed ----- | 58.34 | 66.81 | 62.67 | 118.62 | 123.69 | 121.15 | 150.01 | 164.76 | 157.32 |

Table I shows the feed consumed per bird. By consulting the total grain and mash figures, the best comparison can be made, for it is not fair to compare the weight of buttermilk with cottonseed meal. The birds in Experiment No. 2 in every pen ate more than those in Experiment No. 1. The double grain pen, even with more of the palatable grain, ate practically no more total feed than the standard grain pen but both pens ate more than the cottonseed meal pen. The total feed consumed

was slightly less than shown in the tankage experiments but the egg production was also less.

TABLE II.—Average Number of Eggs per Pullet, per Pen, per Year

| Experiment No. | Cottonseed meal | Double grain | Standard grain |
|----------------|-----------------|--------------|----------------|
| 1 | 46.6 | 139.17 | 159.49 |
| 2 | 64.78 | 136.53 | 174.25 |
| Average | 55.69 | 137.85 | 166.87 |

Table II shows the chief effect of feeding the three rations,—the egg production. There was some variation between one experiment and the other but it was slight. The most important result in this experiment was that on the standard grain ration, the pullets laid 166.8 eggs; on the double grain ration 137.8 eggs, and on cottonseed meal 55.6 eggs. This gives 111 eggs to the standard grain ration as an advantage over the cottonseed meal and 29 eggs to the same ration for feeding less grain and more milk and mash. While Leghorns apparently can utilize more grain than is usually expected, it does not pay to offer it to them; an extremely high price for mash and a very low price for grain would be the only justification.

TABLE III.—Cost of Feed per Bird, per Year, and Cost of Producing One Dozen Eggs

| Experiment No. | Cottonseed meal | | Double grain | | Standard grain | |
|----------------|-----------------|---------------------|--------------|---------------------|----------------|---------------------|
| | Cost feed | Cost one dozen eggs | Cost feed | Cost one dozen eggs | Cost feed | Cost one dozen eggs |
| 1 | \$0.79 | \$0.22 | \$1.06 | \$0.10 | \$1.12 | \$0.09 |
| 2 | 0.93 | 0.18 | 1.09 | 0.10 | 1.21 | 0.09 |
| Average | \$0.86 | \$0.20 | \$1.07 | \$0.10 | \$1.16 | \$0.09 |

Table III gives the costs of total feed required for each dozen eggs. The cottonseed meal pen ate the least feed, consequently the cost was the least. The standard grain pen cost about nine cents more than the double grain pen but such differences are not very indicative. Each year compared favorably with the other, showing the average to be worthy of consideration. The eggs were produced cheaply in two pens but if the no meat-feed pen of the experiment, mentioned in Part I, was compared with the cottonseed meal pen, little difference would be noted. The cottonseed meal was of little value and the birds did no better than if they had not received it at all; apparently it is not very digestible for poultry. Although the cost was slightly greater, the egg production being larger, made the standard grain ration slightly more efficient than the double grain ration when measured in cost per dozen eggs. Costs of nine and 10 cents per dozen are pre-war prices but the comparisons can still be made.

TABLE IV.—Average Number Pounds of Feed¹ to Produce One Pound of Eggs

| Experiment No. | Cottonseed meal | Double grain | Standard grain |
|----------------|-----------------|--------------|----------------|
| 1 | 9.98 | 7.18 | 7.94 |
| 2 | 8.12 | 7.28 | 7.60 |
| Average | 9.05 | 7.23 | 7.77 |

¹ Liquid buttermilk included, calculated as one-tenth dry matter. Grit bone, grit and oyster shell not included

TABLE IVa.—Number Pounds Dry Feed Required to Produce One Pound of Eggs

| Experiment No. | Cottonseed meal | Double grain | Standard grain |
|----------------|-----------------|--------------|----------------|
| 1 | 9.98 | 4.02 | 3.37 |
| 2 | 8.12 | 4.02 | 3.20 |
| Average | 9.05 | 4.02 | 3.28 |

Tables IV and IVa show that a hen is a very efficient transformer of grains into eggs. The actual number of pounds of feed consumed, including liquid milk, in Table I shows that the cottonseed meal was not efficient. Since the liquid buttermilk should be expressed as dry feed to be counted in with the grains and compared with cottonseed meal, it was estimated that buttermilk was nine-tenths water. With milk reduced to a dry basis the standard grain ration produced a pound of eggs from every 3.28 pounds of feed, somewhat more efficiently than did the double grain ration. It was necessary to furnish one-third as much of the standard grain ration to produce one pound of eggs as it was the cottonseed meal ration. Cottonseed meal is not a good poultry feed.

TABLE V.—Average Per Cent. Egg Production, per Month, per Pullet—Two Years

| Month | Cottonseed meal | | | Double grain | | | Standard grain | | |
|------------------|------------------|------------------|---------|------------------|------------------|---------|------------------|------------------|---------|
| | Experiment No. 1 | Experiment No. 2 | Average | Experiment No. 1 | Experiment No. 2 | Average | Experiment No. 1 | Experiment No. 2 | Average |
| November—28 days | 8.9 | 18.4 | 13.65 | 19.0 | 26.0 | 22.5 | 18.0 | 44.7 | 31.3 |
| December | 0.2 | 6.4 | 3.3 | 3.0 | 9.4 | 6.2 | 10.0 | 27.8 | 18.9 |
| January | 6.2 | 12.0 | 9.1 | 29.0 | 22.0 | 25.5 | 20.0 | 19.7 | 19.8 |
| February | 25.0 | 24.0 | 24.5 | 34.0 | 39.9 | 36.95 | 44.0 | 40.0 | 42.0 |
| March | 23.0 | 29.0 | 26.0 | 67.0 | 62.5 | 64.75 | 70.0 | 64.0 | 67.0 |
| April | 34.0 | 38.0 | 36.0 | 75.0 | 70.0 | 72.5 | 7.7 | 70.0 | 73.5 |
| May | 17.0 | 37.0 | 27.0 | 74.0 | 69.9 | 71.9 | 71.0 | 71.0 | 71.0 |
| June | 16.0 | 23.0 | 19.5 | 55.0 | 53.0 | 54.0 | 65.0 | 72.0 | 68.5 |
| July | 6.5 | 8.5 | 7.5 | 37.0 | 43.0 | 40.0 | 53.0 | 50.9 | 51.9 |
| August | 8.0 | 10.0 | 9.0 | 29.0 | 24.0 | 26.5 | 39.0 | 42.8 | 40.9 |
| September | 2.0 | 6.9 | 4.45 | 18.0 | 22.0 | 20.0 | 43.0 | 44.0 | 43.5 |
| October | 2.0 | 0.6 | 1.3 | 11.0 | 8.0 | 9.5 | 16.0 | 20.0 | 18.0 |
| November—2 days | 3.0 | 2.8 | 2.9 | 0 | 4.0 | 2.0 | 0 | 4.6 | 2.3 |

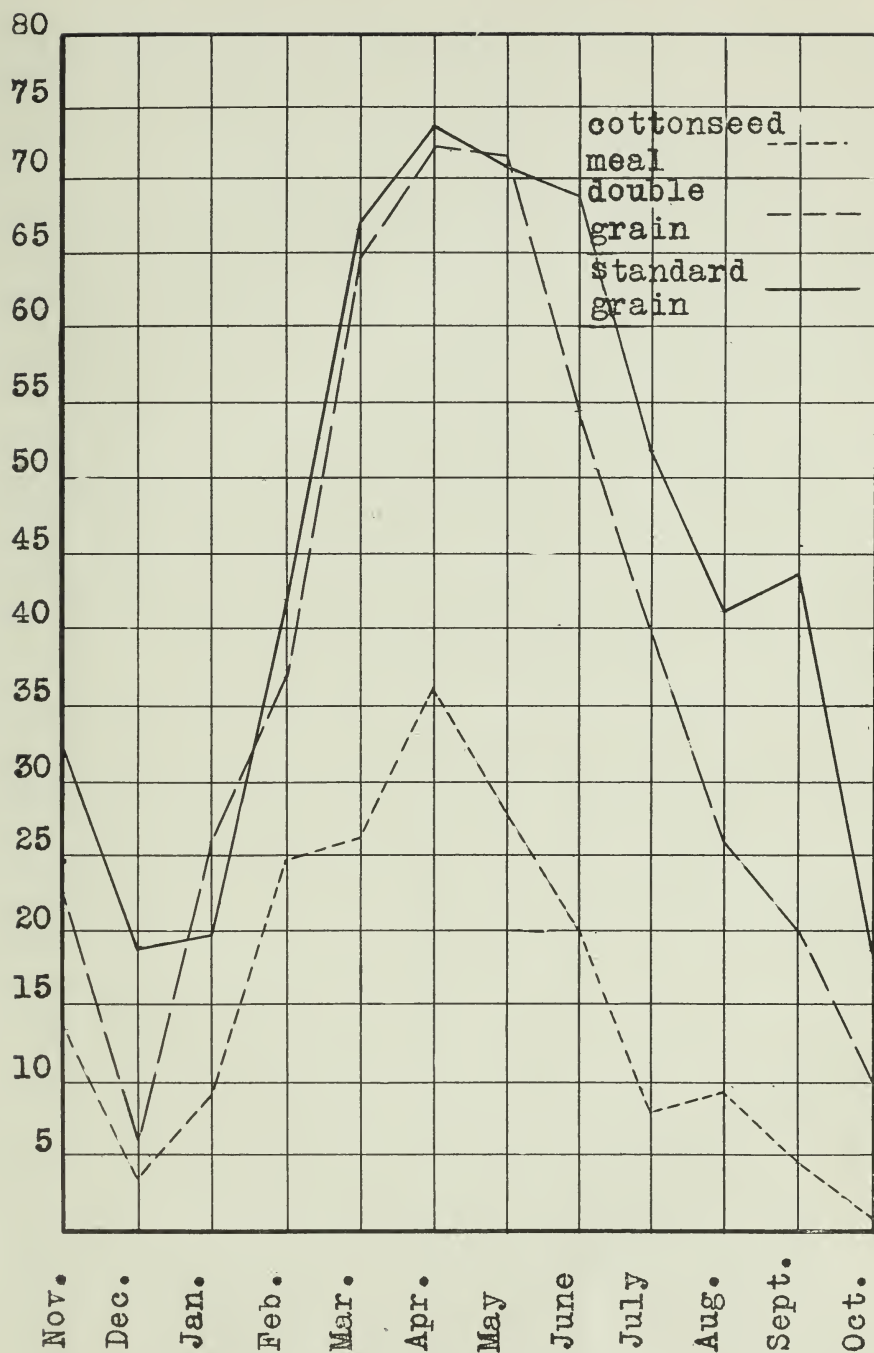


Fig. 6. Average monthly per cent. egg production from pens fed cottonseed meal, double grain ration and standard grain ration

In Table V is given the monthly measure of egg production, that is the per cent. production. The pullets in Experiment No. 2 were better birds so far as being in laying condition is concerned and gave a much better winter egg production than those in Experiment No. 1. November was a better month than December and it was colder during Experiment No. 1 than during Experiment No. 2.

Cold weather with humidity is harmful to Leghorns and they respond quickly to any sudden lowering in temperature, particularly if it is a heavy drop. The double grain ration, with two exceptions, seemed to average a little lower than the standard grain ration throughout the year and dropped back a great deal in hot weather. This might indicate the propriety of keeping up the mash consumption during the heat of summer and possibly even increasing it. What the birds picked up on range did not make up for the shortage of animal-feed. The egg production of the cottonseed meal pen started out well while it had a reserve of the feed the birds were grown upon, but in about two weeks they dropped down to almost nothing. These birds did their best laying in April, the same as the other pens, but they were constantly below them. Poultrymen always want winter eggs because the market prices are high, but it must be remembered that the price is controlled by the supply and a heavy winter egg production over the country would break the egg market. Winter eggs are the exception, not the rule, and a poultryman who obtains over 20 per cent. in January is doing remarkably well.

TABLE VI.—Average Price in Cents, per Month, of Eggs, Sold from the Purdue Farm

| Month | Experiment No. 1 | Experiment No. 2 |
|-----------------|------------------|------------------|
| November ----- | 39.0 | 48.0 |
| December ----- | 42.0 | 48.0 |
| January ----- | 45.0 | 40.0 |
| February ----- | 33.0 | 32.0 |
| March ----- | 21.0 | 24.0 |
| April ----- | 20.0 | 20.0 |
| May ----- | 20.0 | 20.0 |
| June ----- | 20.0 | 21.0 |
| July ----- | 22.5 | 23.0 |
| August ----- | 24.0 | 27.0 |
| September ----- | 28.0 | 38.0 |
| October ----- | 37.0 | 50.0 |

In Table VI are shown the net prices received for eggs after the expenses for express and egg cases had been paid.

The marketing methods of the Purdue Farm were not as good during the days of these experiments as they were during the tankage experiments, (Part I) but in the winter some eggs were shipped to the east. During the other months of the year the eggs were sold in Indiana. Price is a thing that must be sought and increased when possible, as a slight

improvement may turn a loss into profit. The larger the quantity available to sell at one time, the better the chances are for high prices.

TABLE VII.—Average Income and Profit Over Feed, per Pullet, per Year

| Experiment No. | Cottonseed meal | | Double grain | | Standard grain | |
|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|
| | Average income | Average profit | Average income | Average profit | Average income | Average profit |
| 1 | \$0.94 | \$0.15 | \$2.76 | \$1.70 | \$3.17 | \$2.05 |
| 2 | 1.42 | 0.49 | 2.97 | 1.88 | 4.06 | 2.85 |
| Average | \$1.18 | \$0.32 | \$2.86 | \$1.79 | \$3.61 | \$2.45 |

Table VII shows the income and profit over feed from each pen. A discussion of these terms was given on page 15. The cottonseed meal pen paid for its feed, with very little balance. Considering other cost items, it would have been fed at a loss. The double grain and standard grain pens were kept at a profit and because the standard grain pen laid the largest number of eggs it was the most profitable.

TABLE VIII.—Summary of Averages

| | Cottonseed meal | Double grain | Standard grain |
|--|-----------------|---------------------|-------------------|
| Total number pounds feed consumed per bird | 62.67 | 121.15 ¹ | 157.32 |
| Cost feed per bird ----- | \$0.86 | \$1.07 | \$1.16 |
| Cost producing one dozen eggs ----- | 0.20 | 0.10 | 0.09 |
| Number pounds dry feed to produce one pound eggs ----- | 9.05 | 4.02 ² | 3.28 ² |
| Eggs per pullet ----- | 55.69 | 137.85 | 166.87 |
| Income per bird ----- | \$1.18 | \$2.86 | \$3.61 |
| Profit over feed ----- | 0.32 | 1.79 | 2.45 |

¹ Includes liquid buttermilk

² Buttermilk changed to solids by dividing by 10

Table VIII collects the average figures in Tables I to VII inclusive, into the one table for easy comparison. The standard grain pen birds were heavy eaters but they were also heavy layers and brought the largest income and made the most profit over feed. Cottonseed meal is worthless as a poultry feed when no other protein feed is given and should not be fed.

In Table IX is given the fertility and hatching power of the eggs in the two experiments. In Experiment No. 1 the cottonseed meal had the best fertility and the standard grain pen the poorest. This was reversed in Experiment No. 2 and the average does not show that cottonseed meal was harmful to the fertility of eggs.

TABLE IX.—Per Cent. Fertility and Hatching Power of Eggs

| Experiment No. | Fertility of eggs | | |
|----------------|-------------------|--------------|----------------|
| | Cottonseed meal | Double grain | Standard grain |
| 1 | 97 | 90.9 | 89.9 |
| 2 | 89.6 | 93.3 | 96.2 |
| Average | 93.3 | 92.1 | 93.05 |

| Experiment No. | Hatching power of eggs | | |
|----------------|------------------------|--------------|----------------|
| | Cottonseed meal | Double grain | Standard grain |
| 1 | 70.5 | 75.7 | 83.6 |
| 2 | 65.9 | 75.4 | 69.8 |
| Average | 68.2 | 75.55 | 76.7 |

In the hatching power of eggs, the cottonseed meal pen was consistently lower than the other pens but in too small a percentage to warrant any definite conclusion being drawn. There is no indication that increasing the grain in a ration will help or harm the fertility or "hatchability" of eggs.

TABLE X.—Average Number Pounds of Manure Produced at Night

| Experiment No. | Cottonseed meal | Double grain | Standard grain |
|----------------|-----------------|--------------|----------------|
| 1 | 24.20 | 23.22 | 23.57 |
| 2 | 28.52 | 24.86 | 25.85 |
| Average | 26.36 | 24.04 | 24.71 |

As shown in Table X, the nightly manure production of the birds in the pens was rather uniform and was practically the same as that produced in other experiments.

TABLE XI.—Mortality of Birds in Pens

| Experiment No. | Cottonseed meal | Double grain | Standard grain |
|----------------|-----------------|--------------|----------------|
| 1 | 5.0 | 2.0 | 7.0 |
| 2 | 2.0 | 2.0 | 4.0 |
| Average | 3.5 | 2.0 | 5.5 |

In Table XI is given the mortality of each pen. Cottonseed meal is assured by its enemies to be not only detrimental to egg production and hatching power, but to the health of the birds also. In Experiment No. 1 a mortality of five birds was high, but in the standard grain pen it was still

higher. In Experiment No. 2 it was very low. The average does not indicate that it is much worse than what might be found among heavy layers. As a rule, the heavy layers are the ones that show the reproductive and similar troubles, which accounts for some of the high mortality in the standard grain ration pen.

PART III

THE VALUE OF CONFINEMENT VS. SMALL YARD VS. FREE RANGE FOR LEGHORN HENS AND PULLETS

In 1913, questions arose concerning the influence of the amount of range given the fowls upon the egg production and hatching results obtained in some of the feeding and breeding experiments then under way. A general opinion prevailed that free range was necessary for maximum success but as to just how valuable this was, unfortunately, information was meager. Hence a two-year test with white Leghorn hens and pullets was planned and the results are given briefly in this bulletin.

DESCRIPTION OF EXPERIMENTS

Work was commenced in November, 1913 with three flocks, each of 30 Single Comb White Leghorn yearling hens and repeated the following year with three flocks, each of 30 Single Comb White Leghorn pullets. Each experiment was continued for 12 months. The birds were kept in houses similar to those described under the tankage and other experiments and the yards were planted to young fruit trees.

Pen No. 1 was confined to house.

Pen No. 2 had use of house and lot 10 feet by 80 feet.

Pen No. 3 had use of house and lot 130 feet by 160 feet.

TABLE I.—Average Consumption of All Feeds per Bird in Pounds

| Feed | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age |
|----------------------|--------------------------|--------------------------|--------------|--------------------------|--------------------------|--------------|--------------------------|--------------------------|--------------|
| | Hens | Pullets | | Hens | Pullets | | Hens | Pullets | |
| Corn ----- | 14.84 | 22.63 | 18.74 | 13.67 | 22.84 | 18.25 | 12.72 | 22.26 | 17.49 |
| Wheat ----- | 17.31 | 12.91 | 15.11 | 13.53 | 12.58 | 13.05 | 15.07 | 12.24 | 13.66 |
| Oats ----- | 8.04 | 8.88 | 8.46 | 7.81 | 8.85 | 8.33 | 6.95 | 8.63 | 7.79 |
| Total grain ----- | 40.19 | 44.42 | 42.30 | 39.01 | 44.27 | 41.64 | 34.74 | 43.13 | 38.94 |
| Bran ----- | 8.0 | 8.87 | 8.44 | 7.77 | 8.78 | 8.28 | 6.97 | 8.49 | 7.73 |
| Shorts ----- | 8.0 | 8.87 | 8.44 | 7.77 | 8.78 | 8.28 | 6.97 | 8.49 | 7.73 |
| Oil meal ----- | 0.24 | 0.27 | 0.26 | 0.34 | 0.22 | 0.28 | 0.29 | 0.18 | 0.24 |
| Total mash ----- | 16.24 | 18.00 | 17.12 | 15.88 | 17.78 | 16.83 | 14.23 | 17.16 | 15.70 |
| Total grain and mash | 56.43 | 62.42 | 59.43 | 54.89 | 62.05 | 58.47 | 48.97 | 60.29 | 54.63 |
| Skim-milk ----- | 79.8 | | 82.6 | 76.7 | | 82.4 | 68.7 | | 78.9 |
| Buttermilk ----- | | 85.4 | | | 88.0 | | | 89.0 | |
| Oyster shell ----- | 2.92 | 2.81 | 2.86 | 2.48 | 2.69 | 2.58 | 2.23 | 3.15 | 2.69 |
| Grit ----- | 1.47 | 0.78 | 1.12 | 0.71 | 0.62 | 0.67 | 0.74 | 0.79 | 0.76 |
| Total feed ----- | 140.61 | 151.41 | 146.01 | 134.77 | 153.35 | 144.06 | 120.68 | 153.29 | 136.98 |

The ration used was the same as that used in the buttermilk pen of Part II of this bulletin, except that skim-milk was used during the first year and buttermilk the second year. The ration was fed as described in Parts I and II of this bulletin.

In Table I is given the feed consumed per bird in each experiment. In each lot the pullets ate more than the hens, varying from 4.54 to 11.32 pounds of grain and mash. The more range allowed, the less food was given by hand, but the difference between the small lot and confined birds was negligible.

A small lot did not reduce the hand-given feed materially but on free range, even though granaries, grain stacks and manure piles were not available, the birds ate at least five pounds less per bird. This is a big item in a large flock but not as large as some people think. The pullet consumption of grain and mash in these experiments was not as great as given in the other experiments discussed in this bulletin, and as the egg production was satisfactory, the reason is unknown.

TABLE II.—Average Number of Eggs per Bird, per Year

| Experiment No. | Confined | Small yard | Free range |
|----------------|----------|------------|------------|
| 1 (Hens) | 85.0 | 93.0 | 98.0 |
| 2 (Pullets) | 139.6 | 155.8 | 159.5 |
| Average | 112.3 | 124.4 | 128.75 |

The figures in Table II show the egg production. As might be expected, the pullets laid much better than the hens, but the differences between the three pens were not very marked.

The difference between the small yard and free range flocks was much less than between the small yard and the confined flocks, but the small yard flock did much better than was expected of it. The averages of the pullets were good in all cases as were those of the hens.

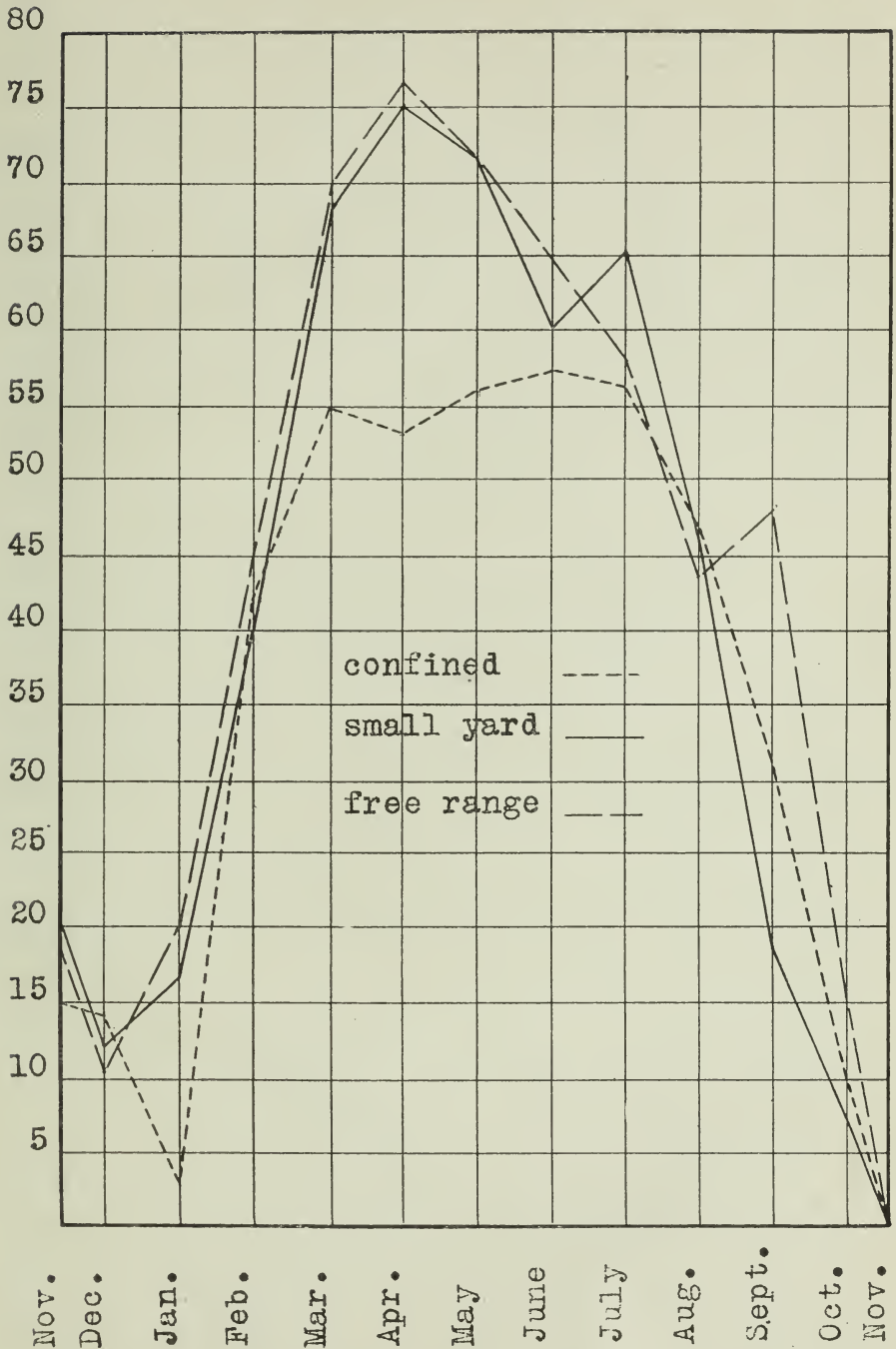


Fig. 7. Average monthly per cent. egg production from pens confined, in small yards and on free range

TABLE III.—Average Per Cent. Egg Production, by Months

| Month | Confined | | | Small yard | | | Free range | | |
|-----------------------|--------------------------|--------------------------|--------------|--------------------------|--------------------------|--------------|--------------------------|--------------------------|--------------|
| | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age | Experi- ment No. 1 | Experi- ment No. 2 | Aver- age |
| | Hens | Pullets | | Hens | Pullets | | Hens | Pullets | |
| November (15 days) -- | 0.07 | 15.0 | 7.54 | 1.7 | 20.0 | 10.85 | 1.7 | 18.0 | 9.85 |
| December ----- | 3.6 | 14.0 | 8.8 | 0.6 | 12.0 | 6.3 | 1.7 | 10.0 | 5.85 |
| January ----- | 7.0 | 2.3 | 4.65 | 4.6 | 17.0 | 10.8 | 2.5 | 20.0 | 11.25 |
| February ----- | 21.0 | 41.0 | 31.0 | 18.0 | 40.0 | 29.0 | 14.0 | 44.0 | 29.0 |
| March ----- | 41.0 | 55.0 | 48.0 | 42.0 | 68.0 | 55.0 | 36.0 | 70.0 | 53.0 |
| April ----- | 57.0 | 53.0 | 55.0 | 53.0 | 75.0 | 64.0 | 48.0 | 77.0 | 62.5 |
| May ----- | 63.0 | 56.0 | 59.5 | 63.0 | 71.0 | 67.0 | 62.0 | 71.0 | 66.5 |
| June ----- | 39.0 | 57.0 | 48.0 | 59.0 | 60.0 | 59.5 | 52.0 | 65.0 | 58.5 |
| July ----- | 17.0 | 56.0 | 36.5 | 38.0 | 65.0 | 51.5 | 49.0 | 53.0 | 51.0 |
| August ----- | 11.0 | 46.0 | 28.5 | 17.0 | 46.0 | 31.5 | 29.0 | 39.0 | 34.0 |
| September ----- | 7.7 | 31.0 | 19.35 | 3.4 | 19.0 | 11.2 | 18.0 | 43.0 | 30.5 |
| October ----- | 1.6 | 10.0 | 5.8 | 1.8 | 6.9 | 4.35 | 2.8 | 16.0 | 9.4 |
| November (15 days) -- | 0.0 | 1.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

In Table III is shown the real results of the experiment,—the monthly per cent. egg production. Hens do not lay in winter and seldom begin to show any marked production before the middle of February. No one should depend on hens for winter eggs. Pullets lay poorly enough but they are the birds for winter production.

December, 1914 and January, 1915 were very cold months with the pullets, the temperature for 15 days being below zero, so no good winter egg production was realized for that time. When the weather is such that combs freeze, pullets cannot lay. The hens did slightly better in the pens not on free range in February and March and equally well in April and May, but as soon as the weather became hot the birds in confinement dropped off in production a great deal. During June, July and August, egg production was directly proportionate to the amount of outside range available. It does not seem to be the food available outside that helps the egg production, but apparently it is the shade, room for exercise and mineral elements supplied from the soil.

The data from fertility and hatching tests were so conflicting that they indicate nothing. In the case of the hens, the greater the range the poorer the hatch, but with the pullets the results were just opposite.

In mortality, the loss was greater with the confined birds than with the others, due to the excessive heat of Indiana summers.

The experiments do not show that it would be economical to supply hens with free range unless the land could be cropped and its efficiency increased. It is surprising how well hens and pullets will do with little room, if properly cared for. In recommending the amount of range necessary for fowls, it might be well to say "give all the room that can be spared but small areas may be considered adequate if cultivated freely."

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